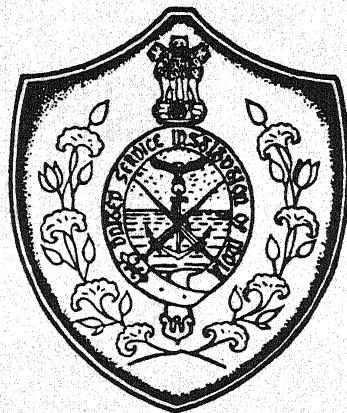


U.S.I. JOURNAL



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The United Service Institution of India was established in 1870 with the object of the "furtherance of interest and knowledge in the art, science and literature of the Defence Services." The Institution organises lectures, publishes a quarterly Journal, maintains a reference and lending library and reading room, and keeps pictures, medals, trophies and relics which form the nucleus of a museum.

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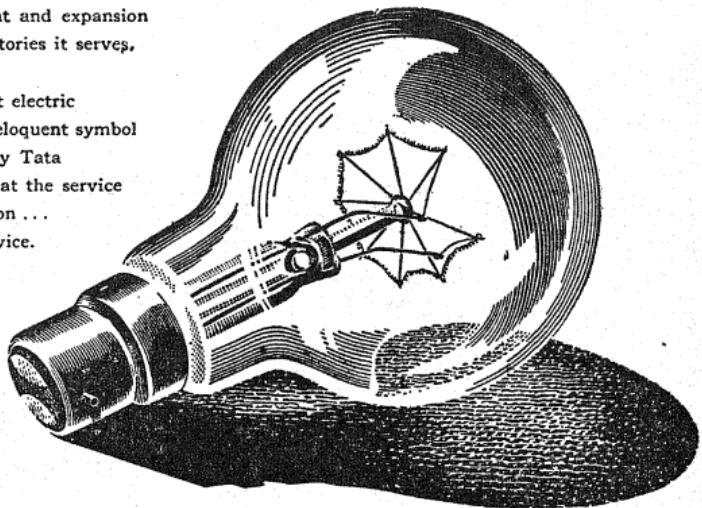
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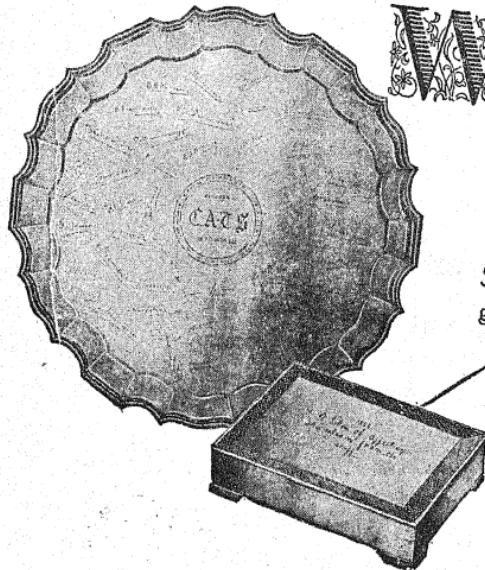
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The Journal of the United Service Institution of India

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ESSAY COMPETITION**GOLD MEDAL PRIZE ESSAY COMPETITION, 1955**

The Council of the Institution has selected the following subject for the Gold Medal Essay Competition for 1955 :—

“A major modern war affects all aspects of the nation’s planning and economy. Not only are the Armed Forces involved, but also every department of Government and the major sectors of private enterprise.

What steps should be taken in peace to develop this homogeneity so as to ensure Co-ordination at the top and Co-operation at all levels in War ?”

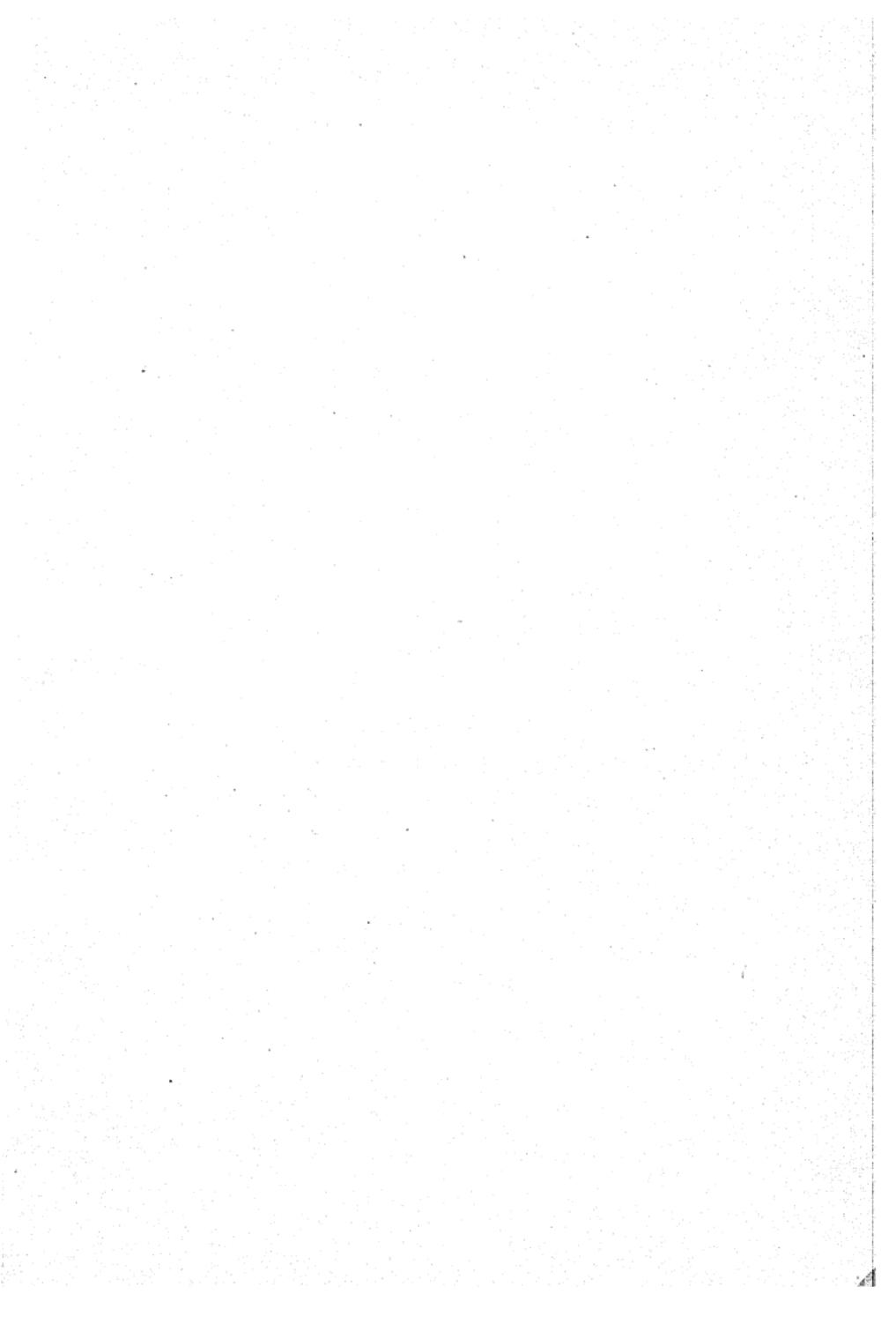
Entries are invited from all Commissioned Officers of the Armed Forces of India, the United Kingdom and other Commonwealth countries, officers of the Territorial Army and the Senior Division of the National Cadet Corps and gazetted officers of the Civil Administration in India. They should be typewritten (double spacing), submitted in triplicate and be received by the Secretary, United Service Institution of India, Kashmir House, New Delhi, on or before 1st July 1955.

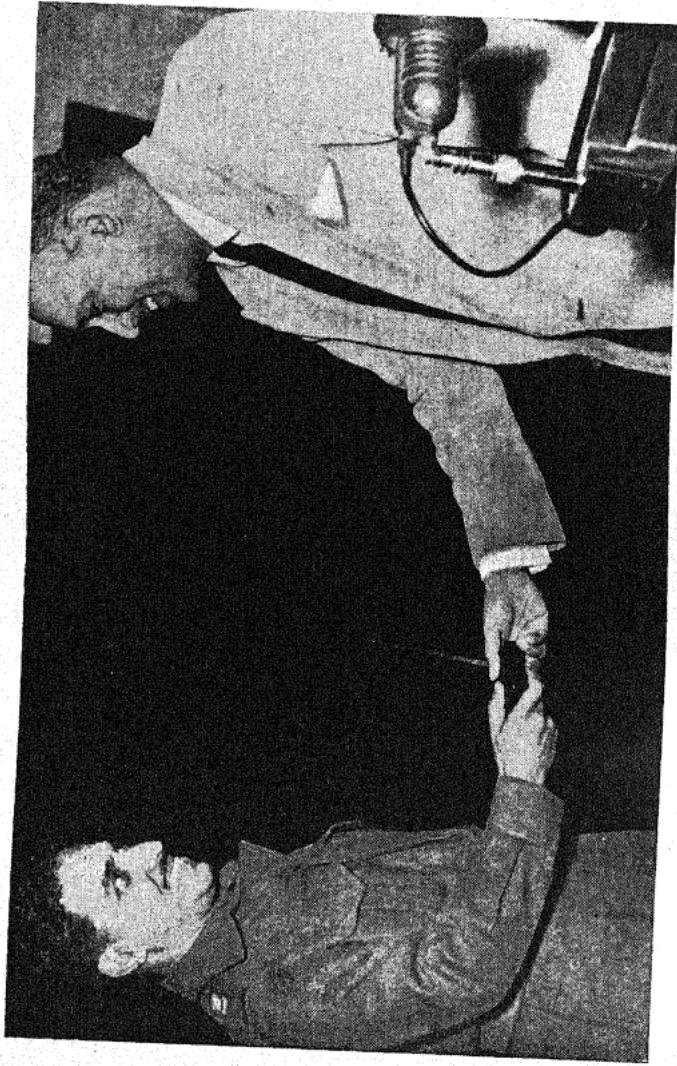
Entries will be strictly anonymous. Each essay must have a motto at the top instead of the author’s name and must be accompanied by a sealed envelope with the motto outside and with the name and address of the competitor inside.

Essays may vary in length between 4,000 and 8,000 words. Should any authority be quoted in the essay, the title of the works referred to should be given.

Three judges chosen by the Council will adjudicate. They may recommend the Gold Medal to the winner and Rs. 200 to the runner-up, or money prizes not exceeding Rs. 700, and will submit their decision to the Council. The name of the successful candidate will be published in the October 1955 issue of the USI Journal.

Copyright of all essays submitted will be reserved by the Council of the United Service Institution of India.





PRESENTATION OF THE USI GOLD MEDAL FOR 1954

Major J. Nazareth of the Grenadiers receiving the Gold Medal from Major-General J. N. Chaudhuri, Chief of the General Staff and Chairman of the Executive Committee of the USI, at a meeting of members in New Delhi.

The Journal of the United Service Institution of India

Vol. LXXXV

JANUARY 1955

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The views expressed in this Journal are in no sense official, and the opinions of contributors in their published articles are not necessarily those of the Council of the Institution

EDITORIAL NOTES

In a lecture to the Royal United Service Institution, published in the RUSI Journal, Field-Marshal Lord Montgomery has drawn a realistic picture of what humanity may expect in the event of World War III. Commenting on the lecture Captain Cyril Falls, the well-known military writer, has stated that while ordinarily a lecture at the RUSI has little impact on the general public, this one has attracted considerable attention outside the circle who were privileged to listen to it. "A Look Through a Window at World War III" by the Deputy Supreme Allied Commander of the NATO, with his reputation for plain speaking, is certainly bound to create a stir not only in military circles but among thinking people in the civil population as well. Among the interesting things he had to say was the fact that none of the fourteen nations of the NATO had developed an adequate Civil Defence organization, which incidentally he likes to call the "fourth Service." The Field-Marshal does not believe that the West will ever launch a preventive war. If attacked, he is definite that it will have

to make up for man-power deficiency by resorting to the tactical use of atomic weapons. Indeed he went so far as to say that all operational planning at SHAPE is based on this assumption. He thinks however that the "Cold War" will continue for a long time.

We can take some comfort from this last reflection. What is known as the cold war is in essence an economic trial of strength between two gigantic rivals. The present armaments' race on a scale hitherto unknown in history, the colossal sums spent on atomic and hydrogen bombs, and the relentless efforts to rope in more and more countries into one or the other bloc, are all of a piece with this show of material strength. Competition has now extended to the field of speedy utilization of atomic energy for industrial purposes. Given sufficient time the race for the exploitation of nuclear energy for peaceful purposes will have a chance to gain on its development for more sinister objectives. Hence the need to keep the cold war cold and to prevent any local conflicts from spreading.

Arts flourish in peace, but science seems to thrive in war or near-war conditions. The scientific and technological advances of the last decade, great as they have been, will be nothing when compared to the industrial revolution which the harnessing of nuclear power is bound to bring about. The idea of the welfare state even for the present under developed countries will no longer be a dream.

Meanwhile there is the ever present danger that, "In trying to win the cold war one side or the other may miscalculate and bring on a hot war though neither side wanted it." Statesmen of all nations, within power blocs and without, have an awful responsibility in the maintenance of peace in this critical period. India, we are assured by our Prime Minister, will not shirk hers.

GOLD MEDAL PRIZE ESSAY 1954

FIGHTING SPIRIT IN THE ARMED FORCES

MAJOR J. NAZARETH

“The maintenance of a strong, healthy fighting spirit and all this term implies is essential amongst all ranks of the Armed Forces. It is natural, however, that the means adopted to achieve this end should vary with each Service.

It is often stated nowadays that many of the time-honoured methods by which this fighting spirit has been inculcated in the past are out of date in the context of modern warfare and in the changed conditions under which our Armed Forces are now required to serve.

What are your views on the above statement and what modifications, if any, do you suggest in the old methods of fostering a virile fighting spirit in India's Armed Forces?”*

INTRODUCTION

LIKE the individuals who compose them, each of the fighting Services of the Armed Forces has both a body and a soul. The organization, weapons and equipment give each of the Services its corporal form, and its ability to fight; while its fighting spirit which is its soul gives it its will to fight. Since all human actions are preceded by volition, the ability of the Services to fight depends primarily on their will to fight. Hence irrespective of the scientific developments of armaments, Man will always be the first weapon of war. Napoleon said, “In war the Man is everything.” Unfortunately training has always been focussed on improving the corporal form of the Services while the development of their spirituality has been left to look after itself. And yet History is full of examples of the tremendous value which the soul of a fighting organization plays in combat and all great commanders have recognised this fact. Ancient Rome honoured Quintus Fabius who saved her in her dire

* Subject for the Gold Medal Prize Essay Competition 1954. This essay was awarded the Medal (Ed.)

peril against Hannibal "because he did not despair of the Republic." Napoleon rated the moral to the physical as three to one and stated that two Mamelukes would beat three French soldiers, but one thousand French soldiers would beat one thousand five hundred Mamelukes. Marmont wrote of "the mysterious forces which lend momentary power to armies, and which are the key to the reasons why at times one man is equal to ten, and at others ten are worth no more than one." Sherman said, "There is a soul to an army as well as to individual men and no general can accomplish the full work of his army unless he commands the soul of his men as well as their bodies and legs." Foch believed that victories are also won by faith, and Gen George C Marshall said, "The soldier's heart, his spirit and his soul are everything. Unless the soldier's soul sustains him he cannot be relied on and will fail himself and his commanders and his country in the end."

The aim of this essay is to examine the methods by which this fighting spirit, which is the soul, has been infused in the Armed Forces in the past, and to suggest a revision of these methods if necessary in the light of modern warfare and the changed conditions under which our Armed Forces are now required to serve.

MODERN CONDITIONS AFFECTING THE FIGHTING SPIRIT

Let us now examine the aspects of modern warfare and the changed service conditions which may affect the methods by which this fighting spirit has been inculcated in the past.

Since the earliest times warfare has successively progressed in intensity and destructiveness. As a result of new weapons of horror introduced from time to time, the fighting spirit of the combatant has been subjected to fresh stresses and strains. Although the introduction of gunpowder created the same sense of horror in its day as the atomic bomb of today, and the burning mirrors of Archimedes at Syracuse the same surprise and consternation as the use of poison gas, modern warfare with its complex weapons of total destruction has created problems for the fighting spirit of the combatant unprecedented in the past.

For the purpose of our study the main characteristics of modern warfare which may affect this fighting spirit are as follows:—

- (a) In addition to the increased destructive power of the conventional weapons, modern warfare has enlisted the devastating agents of atomic, biological and chemical warfare.

These have increased the combatant's fear of the unknown and decreased his chance of survival in war.

- (b) Psychology is extensively used as a weapon of modern warfare to subvert and undermine the morale of the combatant in 'cold' and 'hot' wars.
- (c) The nature of modern warfare demands a greater degree of initiative from the individual combatant than was required in the past.

As far as the changed conditions under which our Armed Forces are now required to serve are concerned, the main factors which affect the fighting spirit of the combatant are as follows:—

- (a) Since the independence of the country the Armed Forces have been nationalised and have identified themselves with the people of the country.
- (b) The primary role of the Armed Forces is now the defence of India and most of the fighting service of the combatants will be within India.
- (c) There is an increase in the level of education of the troops and a growing awareness of their rights and privileges.
- (d) Due to financial stringency the officer class is more involved in financial worries and has become more domesticated. The Armed Forces no longer attract the best material for their officers' cadre as the career offered no longer compares favourably with equivalent civil occupations.

THE BASIS OF A FIGHTING SPIRIT

In examining the efficacy of the methods by which a strong healthy fighting spirit has been inculcated in the past, we must make a proper analysis of the causes that create and sustain this fighting spirit. As in a healthy human body, a sound mind should exist in a sound body, so also with the Armed Forces. Body and mind are inter-related and a diseased body can affect the spirit. If the ability of the Armed Forces to fight is affected by bad administration, faulty training and inadequate weapons, their will to fight will also be endangered. But in order to obtain the proper deductions from our study, it is necessary to draw a dividing line between the mental and bodily diseases of the Armed Forces. For, how often have we not seen both in individuals and in fighting organi-

zations the spirit transcend the imperfections of the body? Did not Napoleon's ragged, ill-fed and ill-equipped armies conquer Italy against outnumbering and better clad forces? As an example of what a mighty spirit in a feeble body can achieve, one calls to mind the first order of Napoleon to his Army about to cross the Alps and win the battle of Marengo. "In every demi-brigade tomorrow the conscripts must be made to fire several shots so that they may know with which eye to take aim and how to load their muskets."

Again, one always associates a fighting spirit with the martial qualities required in battle of courage, endurance, initiative, alertness and comradeship. It is agreed that without these qualities no success in battle is possible, but a closer study will show that most of these qualities pertain to the training of the body of the Armed Forces while a few of them like courage and comradeship are not the basis but a result of a healthy fighting spirit.

From our analysis so far it is apparent that we have to study the subject from two aspects, firstly the mental foundations of a fighting spirit, and secondly, the effects of the limitations of the corporal form of the Armed Forces on their fighting spirit.

SPIRITUAL FOUNDATIONS

The spiritual foundations of a strong healthy fighting spirit are common to all the three Services of the Armed Forces. Shorn of all its trappings, the problem can be reduced to this—no man wants to die, why then does the combatant face death heroically? The motives have varied with the changing course of History, although there have been some common causes that have always impelled men to fight. The changing methods of warfare have also affected these motives, as I shall show. Again, different races have been inspired by different ideals and different captains of war have selected different motives to infuse a soul into their fighting forces. The Italian Army of World War II was an army without a soul. Had Mussolini used the medium of stern discipline instead of trying to inspire the Army with the glory of ancient Rome, he might have given it the soul it required. This fact, that the fighting spirit is nurtured by different motives, itself suggests that the old methods of fostering it require revision. Let us now examine these motives.

Since warfare started, men have fought for one or more of the following reasons; desire for loot or glory; hatred of the enemy; love for

country, for a cause, for a leader, or for a unit, commonly expressed as 'esprit de corps'; and lastly discipline, whether it be an iron discipline or the discipline based on comradeship. Some of these motives can be inculcated by training the body, but the problem pertains primarily to the soul of the fighting organisation. Each of these motives are analysed below.

As long as profitable wars could be waged in which victory gave considerable spoils to the conqueror, desire for loot attracted men to arms. Mercenary soldiery, the highly disciplined condottieri, flourished in the medieval period when wars were restricted to the combatants. On the seas, a captain of renown had no difficulty in getting a crew who could hope for prize money serving under his flag, while less fortunate captains had to resort to press gangs for recruitment.

The early wars afforded the combatants an opportunity of displaying valour, and many men coveted the glamour and glory of bearing arms. The ancient Rajput and the Spartan sought glory on the battlefield. The sea captains of Queen Elizabeth I of England, vying for glory, fought their private wars on the seas with the King of Spain.

What loot or glory is there to be gained on the modern battlefield which is dominated by weapons of mass destruction ?

Hatred for the enemy is not the universal feeling that impels a combatant to fight as is generally supposed. In spite of the attempts of politicians to rouse hatred for the enemy when war is declared, most wars are fought impersonally. However, hatred for the enemy can sustain the fighting spirit of the Armed Forces. Between ancient Rome and Carthage intense mutual hate inspired the two armies, in a protracted struggle, until Carthage succumbed. To be a potent force, hatred must be indoctrinated. The Soviet Armed Forces consider hatred of the enemy indispensable in maintaining the morale of its combatants. Stalin stated, "It is impossible to defeat the foe without learning to hate him with all one's soul." As Communism seeks the extermination of Capitalism for its own survival, indoctrination of hatred can be carried out in peace. A democratic country committed to a policy of neutrality like India cannot exploit this factor to be of consequence.

What is the force of the love for the leader as a stimulant to the fighting spirit of the soldier in modern warfare ? In the past, men have willingly sacrificed their lives in the service of great leaders, who owing to

the nature of warfare, were able to exercise greater personal command. Napoleon, Malborough and Nelson were so able to inspire their troops that they willingly died for them. In modern wars, the higher the level of command, the more the commander's position approaches that of a director than of a commander. If he is good, he will undoubtedly make his personality felt, but as his influence is not direct, the force of this incentive is weakened. However, the junior leader is still in a position to inspire his troops, but his personality will be reflected in the unit which he influences, and love for the unit will be the inspiration.

From the earliest times love for country has always been one of the most common and noble motives that have sustained the fighting spirit of the combatants. What is being discussed here is not the lukewarm love for country, but the patriotic fervour that causes men to sacrifice their last willingly.

In the recent past, except to a limited degree in the War in Kashmir, no fire of patriotism has inspired our Armed Forces because they fought under an alien rule. Are we to let this feeling of patriotism develop of itself or should it be cultivated? It would be unwise to take for granted that in future wars patriotism will inspire our combatants.

In the past, belief in a cause has been responsible for the initial flood of enthusiasm but it has seldom by itself sustained a combatant's zeal for war. When face to face with the enemy no combatant was inclined to debate over the niceties of who was right and who was wrong; rather he fought as part of a good unit and because he had a good leader. The Crusaders had the best of causes but fought no better than the Saracens. However, with the modern use of psychology as a weapon of war, belief in a cause has assumed greater importance in giving a combatant a will to fight. This is more so as there is a higher standard of education and intelligence among the members of the Armed Forces today. The force of ideas tends to dominate the modern world, and we see today the spirit of patriotism being subdued by what is considered the greater ideals of Communism. And since the combatant's chance of survival in a future war will be small, he will demand a good reason for which he is called upon to give up his life.

SPIRITUAL REQUIREMENTS TO PROMOTE A FIGHTING SPIRIT IN THE INDIAN ARMED FORCES

The genius of each nation reacts differently to the different stimulants to the fighting spirit. With the German Armed Forces it was the

iron discipline which it inherited from Frederick the Great of Prussia, that formed the bed-rock of the fighting spirit; with the Japanese Armed Forces it was devotion to a cause, the worship of the Emperor; with the Soviet Armed Forces it was hatred for the enemy and patriotism; with the British Armed Forces it was regimental tradition, 'esprit de corps' and the discipline of comradeship, a legacy of Sir John Moore and Nelson; and with the Indian Armed Forces in the case of the Army, it was 'esprit de corps' and regimental tradition, the Navy being influenced by the British naval traditions. This does not mean that the other incentives to a healthy fighting spirit were lacking in each case, but these were the main motivating forces.

What is the relative importance of each of the fighting motives we have discussed above? Certainly not the nobility of the motives. We may rank patriotism and love for a cause as the most noble, and love for loot as the most sordid of these motives; yet fighting organizations inspired by love of loot have fought better in many cases than those stimulated by a nobler motive. A study of history shows that fighting organizations have fought best which have been inspired by discipline and 'esprit de corps.' The French Foreign Legion like the Indian Army before independence has no patriotic zeal, being composed of men of various nationalities. It is inspired by discipline and 'esprit de corps' and its fighting efficiency has been of the highest order. It is fortunate that these two motives have been the basis of the fighting spirit of the Indian Army.

From our study so far we are led to the following conclusions. Loot and glory have ceased to be incentives to the fighting spirit of the modern combatant; hatred for the enemy can be a strong force but cannot be exploited by a democratic country committed to a policy of neutrality; men will not fight for a leader in modern wars although a junior leader may inspire men to fight for the unit; love for a cause has assumed very great importance owing to the use of psychological warfare, greater education of the troops and the slender chance of survival in battle.

Our Armed Forces must be motivated by 'esprit de corps', belief in a cause, patriotism and discipline. Of these motives tradition plays a great part in building up 'esprit de corps'. Our Navy has no great tradition of its own, and our Air Force is still in the process of building up its tradition. Our Army has built up its tradition under an alien rule, although that tradition is responsible for its cohesion and fighting spirit today. We must readjust past traditions in consonance with patriotic ideas. The Navy

must pick up the threads of its tradition from times dating back to the Mauran Emperors when we ruled the seas of South East Asia. 'Esprit de corps' is also promoted by discipline which is discussed later. The problems of 'esprit de corps' which pertain to man management are outside the scope of this essay and have not been discussed.

To promote patriotism and belief in our cause there must be systematic indoctrination. The term 'indoctrination' has acquired an odious significance but shall we train only the body of our Armed Forces and neglect the soul? In the Armed Forces of Nazi Germany and the Soviet Union considerable attention has been paid to the indoctrination of the troops and there is no reason why these worthy incentives to the fighting spirit should be left to develop of themselves in our Armed Forces. It would be out of place to discuss here the ways and means of carrying out this indoctrination. We would do well to remember that the intelligent combatant of today who has just obtained political freedom is highly susceptible to new ideas.

Our Armed Forces have inherited from the British the discipline of comradeship and mutual respect rather than of fear. This type of discipline suits our democratic mentality. Discipline trains the minds and bodies of organized men to react instinctively to a situation. It is most essential for a fighting spirit because it gives the combatant an instinctive will to fight. We shall discuss the disciplinary training of the body later. The Prussian type of discipline of which Frederick the Great was chief exponent appeals to the physical rather than the spiritual. The martinet tries to control the instinct rather than the reason of the combatant whose limbs are drilled into automatic obedience without the intervention of his intellect. This discipline plays upon the senses of pride, fear, shame and habit. Our discipline teaches the combatant the reasons why orders must be obeyed, and replaces the habit of the bodily action by the habit of thinking or the use of initiative. In this, our discipline differs from that of the Russian and Japanese Armies of World War II. This discipline has proved itself to be invaluable in sustaining the fighting spirit of the soldier in the vicissitudes of war and is most appropriate in developing the initiative of the combatant which is a requirement of modern warfare. However, in our application of this discipline we have introduced our characteristic national faults. Like with the French Army a false spirit of 'camaraderie' is tending to replace the true discipline of mutual respect. This is due to a lack of proper leadership. Being a sensitive race

we do not differentiate our social from our official duties and find it difficult to correct firmly owing to the unpleasantness involved. If this 'camaraderie' is not checked, like a rot it will sap the vitals of our fighting spirit, as it did in the French Army. By it the Soviet Armed Forces were brought to the verge of disintegrating into a sociable rabble; it was saved in time by the injection of Prussian discipline which today demands that a private salutes a corporal.

ORGANIZATION, TRAINING AND ADMINISTRATION

The physical infirmities of the Armed Forces may spring from defects in their organization, training and administration. Any one of these factors by restricting the combatant's ability to fight may also undermine his will to fight. We shall consider each of these factors in turn, but only the points more pertinent to our study will be discussed.

Prestige

From the organizational point of view the national prestige of the Armed Forces is the most important factor in building up a fighting spirit. This fact has been recognised by all great commanders in the past. Gustavus Adolphus designed uniforms to make the Army colourful and give it a superior social standing. Throughout history we find great statesmen and commanders attempting to make the Armed Forces distinctive and thereby giving them elan because they realised that prestige was a morale building factor necessary for the fighting spirit. The Indian Army was a wonderful fighting machine under the British because its prestige was secure. The Soviet Army today holds a privileged position in the country. On the other side of the scales we see the armies of the democratic countries being plucked of all their feathers and humiliated and demoralised by unthinking politicians. One is reminded of the fable of the limbs quarrelling with the stomach.

It is most unfortunate that this pruning of the Armed Forces is taking place in our country. There are pacific minded leaders who feel that the Armed Forces are an unfortunate extravagant nuisance which the nation has to maintain for the Republic Day Parade. Others try to score off past grudges by visiting their wrath on the Armed Forces. As a result, the Armed Forces have been subjected to constant pin-pricks curtailing their pays and privileges. As a target for this pleasant game the Armed Forces make ideal victims because unlike civilians they cannot resort to concerted action to secure their just demands, nor can they resign at will.

and they are entirely dependent on the good faith of the State. From the finance point of view, the temptation of cuts on the Armed Forces expenditure is irresistible because there is no material return for the money spent. Battles are won by superior morale, and superior morale consists in thinking yourself better than everyone else. But this mental attitude cannot exist when the combatant is dissatisfied with his profession and is treated not as a symbol of the security of the country but as a drain on the country's resources. For those who view this matter with smug complacency, the number of applications received from the officers of the Armed Forces for transfer to civilian appointments whenever an opportunity is offered, should be an eye-opener. From the recruitment to the officer class it is apparent that we are depending on second rate leaders to keep up the fighting spirit of our Armed Forces. What it amounts to is this, that the State is underwriting the security of the country with a cheap insurance policy in a doubtful company.

Offensive Outlook

From the training point of view, we shall only consider that aspect of training which has a direct bearing on a healthy fighting spirit. Training should aim at fostering the martial qualities of courage, endurance, initiative, alertness and comradeship and it must attempt to instil in general an offensive spirit. The British Navy has inherited a long tradition of offensive spirit and the Royal Air Force has been built up on the firm basis of offensive spirit by Lord Trenchard whose motto was "Attack, attack and always attack." With the French Army the "Maginot Line mentality" killed its fighting spirit. Let us beware that the role of our Armed Forces, namely the defence of India, be not misinterpreted to mean a defensive outlook.

Drill

We have already considered the disciplinary training of the mind. In the past considerable emphasis was placed on the disciplinary training of the body to produce a fighting spirit. Drill formed the major part of the soldier's training. The drill book became the soldier's Bible. But even today the drill taught differs little from the drill used by Frederick the Great as modified by Sir John Moore in 1803, and it must be remembered that the troops of Frederick the Great fought in close formations. General Drill 1950 says, "The first and quickest method of teaching discipline is drill". We could use that type of discipline if we fought in phalanx formations! With drill have gone all its adjuncts of

"spit and polish." The worship of drill and "spit and polish" has become a fetish completely out of tune with the needs of modern warfare. Love for ceremonial show has taken the place of practical training in the business of fighting. We have not been able to distinguish between the soul and the carcass of the fighting unit. Will ever a crack elite formation be produced by frills and finery! Lord Kitchener said, "The modern army is not a costly toy maintained for purpose of ceremonial and display but simply an insurance against national disaster."

Let us rather make a fetish of toughness as the Japanese did and of professional efficiency as the Germans did. It is a fundamental principle of instruction that training should be imparted in the form in which it is to be used. If mass performance helps to instil discipline by making a combatant feel part of a fighting organization, why for instance should we not originate a ceremonial display of physical toughness instead of the ceremonial parade? The combatant would cash in in time of war on this type of training rather than on the hours he spends in polishing buttons which he has to camouflage; in forming straight lines when he has to grovel in the mud to take cover; and in stamping his feet in unison when he has to stalk his enemy. In this respect our training during peace is unrealistic and leaves the soldier entirely baffled at the start of the war to the detriment of his fighting spirit. Close order drill when overdone conflicts with the demands of training the individual initiative for which there will be a great requirement in a future war.

The problem is slightly different for the soldier, sailor and airman. The airman is less concerned with leadership and handling large bodies of men than with disciplining and managing himself. He is essentially a technical man. His ability to lead others and the success of his expedition will depend on leadership resulting from the confidence his men have on his technical knowledge and flying skill. He requires the highest degree of personal initiative. The soldier fights as part of a unit, but the extent of the battlefield and its fighting conditions requires of him a high degree of personal initiative. With the sailor all authority is concentrated in the captain whose voice reaches every corner of the ship. The sailor has to use his wits not as to what he has to do, but how to do a specified job. It would appear from this that the importance of close order drill paid by the three Services is topsy-turvy. It is the sailor who should do the most and airman who should do the least of close order drill and the Army the bare minimum.

Routine

The whole system of naval organization is based on a 'routine' which may be daily, weekly, monthly or yearly. The fighting ship and the crew are kept in trim by routine both at sea and in harbour. The daily routine lays down the programme of work and duties for the twenty-four hours of the day. At stated periods anchors, cables and under-water fittings must be tested. This routine is also necessary so that officers and ratings drafted from one ship to another will quickly fall into their appointed places and understand their proper duties. Therefore naval training must be based on routine.

The Army always fights under unexpected conditions and therefore it is trained most efficiently if variety is provided. The soul of the army is killed by routine and yet our past and present training puts the troops through insipid routine training programmes in which hours of drill and musketry are spent. The fault is due to unimaginative and inefficient officers and must be eradicated.

Sports and Games

Among the time honoured methods by which fighting spirit was inculcated in the past, athletics and games have played an important part. Wellington once said that "the Battle of Waterloo was won on the playing fields of Eton." With the gullibility with which we have accepted cliches of great men we have taken this to mean that a good fighting unit is one proficient in athletics and games. Considerable importance is paid to the individual and unit athletic prowess which is taken to be a measure of fighting efficiency. Valuable training time is lost in training 'Gladiator teams' who have become professionals in their particular branch of sport and have taken up a large share of the unit's time and money for their upkeep. In addition they are treated as an elite class with privileges denied to the rest. These 'gladiators' are supposed to bring honour at brigade, division, command and Army Headquarters competitions and for this contribution they pick the plums of promotion irrespective of their professional ability. We have also seen these 'gladiators' formed into 'travelling circuses' to win tournaments all over the country for the 'honour' of their regiments! The armies of Gustavus Adolphus, Napoleon, Hitler and Hirohito were first-class fighting organizations addicted to attaining skill in the military art rather than in athletics and games. The causes of defeat of some of them must be found in other factors. The value of sports in producing a fighting spirit and in character

building is not denied. In fact sportsmen do make better soldiers if they are allowed to become so. The objection is to athletics and games being considered as the ultimate answer in producing fighting spirit in a military organization. Modern warfare is too complicated to neglect technical training through over-emphasis on games. This over-emphasis has resulted in treating war as a game which it is not, because it is not played according to any rules. As an example, Kitchener speaking of the Boer War, said, "People here do not seem to look upon the war seriously. It is considered too much like a game of polo with intervals for afternoon tea."

The Fighting Spirit of the Officer

In the past considerable importance was paid to developing the fighting spirit of the officer. This was because of the truism "There are no bad soldiers, there are only bad officers." The officer class had leisure and financial resources to indulge in all forms of manly activities which built up the fighting spirit such as hunting, trekking, polo, fishing and riding. All these pastimes encouraged the spirit of adventure and developed resourcefulness and nerve among officers who thereby always retained a youthful vitality, physical fitness and zest for life and thus were leaders of men. In past wars a technical lack of efficiency was not a great disadvantage to an officer who had a fighting spirit. In fact the officers as a whole prided themselves more on their manly qualities in all forms of outdoor life than on the knowledge of their profession. Warfare today is too complex for an officer not to have a sound professional knowledge and no officer can instil a fighting spirit in his men if they have no confidence in his professional ability.

However, we cannot afford to neglect the fighting spirit of the officer which is built up by virile forms of recreation. Financial stringency and social conditions have domesticated the officer class of today. It would be a major tragedy if the fighting spirit of our Armed Forces is lost because the officers have become stale through inactivity and loss of the adventurous spirit.

There are many avenues open to us even today under our present conditions to develop the fighting spirit of officers and to uproot them from their state of domesticity. Whereas in the past the officer found his own opportunities in leading a healthy adventurous life, today owing to the monetary difficulties of the officers, the Armed Forces must take the responsibility for providing the officers with an opportunity for healthy virile recreation. This is well within the means of each of the Service

Headquarters without any additional financial commitments. All that is required is that this problem should be properly studied. For example, the resources of all the three Services can be pooled. At an inter-Service level the Army can provide hiking, skiing, mountaineering and shooting centres for all the three Services in Kashmir, on our Northern Frontiers and in the jungles of Madhya Pradesh in the present available accommodation. The Navy can provide opportunities for sailing at suitable naval ports and the Air Force can provide glider and flying facilities at suitable air centres. Voluntary parachute jumping facilities can be provided for all who desire to avail of them and all officers under training at National Defence Academy should be encouraged to take to voluntary parachute jumping in their spare time.

These forms of recreations are far superior from the point of view of developing the fighting spirit to those used in the past. Of flying as a sport Wavell says, "I can conceive of no pursuit, not even excepting hunting, better calculated to develop the qualities we require in an officer—resource, nerve, quick decision and an eye for country, than flying." Such varied outdoor activities are available in few other countries and we would be wise to exploit them. All these centres can be maintained with little additional cost at suitable places where available accommodation exists and they will provide a happy meeting ground for all the officers of the Armed Forces.

In addition to what has been discussed above, in the past a varied career demanding initiative and enterprise was open to the officer in various theatres of the Empire. One useful procedure was the system known as 'scallywagging' which consisted of posting officers to various irregular forces in the Empire. Today we have limited 'scallywagging' opportunities on our North East Frontier. However, vast areas of our Northern Frontier are topographically practically unknown. Extensive reconnaissances of these areas would provide good opportunities for our young officers for adventure and the exercise of independent command.

Administration

From the administrative point of view, it is essential for good morale and a healthy fighting spirit that the combatant is properly housed, fed and equipped. When the Spartans asked the oracle of Delphi "Can anything harm Sparta ?" the answer was "Yes, luxury." Our peasantry provide excellent fighting material. Since the past wars the comfort needs of the combatant have increased. There has been a tendency to

impose welfare on the troops from a higher level. In doing so we are accepting a lower standard of leadership from our officers. Our troops today cannot be said to be pampered but this is a danger which we must guard against.

CONCLUSION

We must stimulate the fighting spirit of our Armed Forces by 'esprit de corps', belief in a cause, patriotism and discipline. In enforcing the discipline of mutual respect the insidious spirit of 'camaraderie' must be eradicated.

It is most essential that the prestige of the Armed Forces be restored without in any way making them a class apart. In our training we must stress the offensive spirit although the role of the Armed Forces is the defence of India. We are apt to observe a slavish adherence to tradition in essential matters. We must recast our ideas regarding the worship of drill, ceremonial, and 'spit and polish.' Monotonous routine training programmes kill the soul of the army and are due to inefficient leaders. The importance we attach to sports and games must be placed in the proper perspective and in no case should there be over-emphasis in this respect at the cost of professional efficiency.

The officer class has become domesticated mainly due to financial stringency. Service Headquarters must take over the responsibility of providing them with virile recreations. This can be done at little additional cost by providing recreation centres of manly sport at a joint Services level. Young officers can be given the opportunity for adventure and the exercise of independent command by organising topographical reconnaissance along our unexplored Frontiers.

The welfare of the combatant must be the first business of his leader and should not be imposed from above. The danger of pampering our combatants is an ever present one which we must guard against.

THE UNITY OF INDIA

C.S. VENKATACHAR, I.C.S.

Lecture on Monday 15th November, 1954

[With Major-General J.N. Chaudhuri, OBE, in the Chair]

THE CHAIRMAN: There is no need to introduce Mr. Venkatachar today since he has already given us two talks on India and her problems. This is the third of the series and is meant to produce controversial ideas. He hopes that you will argue with him on that. Mr. Venkatachar :

LECTURE

GEOGRAPHICALLY, India is one. No other area of continental dimension has such strategic significance as geographical India.

The Indian Ocean and the high Himalayas have effectively isolated India and barred easy movements from without, but within India there are no insuperable barriers for movement. Externally, geographical India has remained inviolable in the sense that no neighbour of India had ever the strength or the strategic opportunity to detach permanently large parcels of Indian territory and incorporate them in a kingdom or an empire situated outside India. At times, the expansionist ambitions of a Darius or a Burmese king may have resulted in the nibbling of a small fringe of territory in the north-west or the north-eastern regions of India but such temporary shifting of frontier in the remotest parts were inconsequential events in India's long history. The outer geographical framework of India was permanently fixed by Nature. This has given unity to India but within it there has been free play of internal forces giving rise to linguistic and ethnic diversities.

What promotes or hinders India's unity is an internal and not an external problem. The historical angle on this matter has been most obtuse. For this Western Imperialism is the real culprit and it must bear a large share of blame. In its understandable anxiety to perpetuate Western dominance, it presented a picture of the terrifying invasions along the traditional routes to India through the Khyber Pass and the unending prostrations of a helpless India before the invaders. It became an obsession to view India and the problems of her unity from the

Khyber. If you seriously wish to obtain a balanced perspective of India's unity, the most intelligent way would be to view the North from the tip of the peninsular South.

Peninsular India below the Narbada consists of a central tableland from which is isolated the western coastal littoral area. The eastern coastland is deltaic in character. The rivers which have their sources on the Western Ghats flow through the tableland, descend to the low lying coastal regions and discharge into the sea. An important feature of Indian physical geography is the Vindhyan Range in the central regions which divides the North and the South, and from the remote past till modern times the Vindhyan system has proved an effective barrier of separation between the two areas. The North, that is the historic plains of Hindustan, is a vast stretch of unrelieved monotonous alluvium, completely encircled in its northern boundaries for over 1500 miles, by the majestic Himalayas and watered by the rivers of the Indus and the Gangetic systems.

These characteristics of Indian physical geography have their homologue in the Indo-Chinese Peninsula. The north Indian plain with its river systems has its counterpart in the Yellow River basin of North China which is the cradle of Chinese civilization. The deltaic regions of the eastern parts of India may be compared with corresponding regions of South-East Asia. The latter have rice growing basins, deltas and irrigated dry zones. The lower reaches of the Irrawady, the Menam and the Mekong have been the bases of organised kingdoms and higher up in the wilder mountains and dense forests live hill men pursuing their primitive life. Similar is the case in the Assam hills, the upper reaches of the Mahanadi and the hilly portions of the east coast of India. The lie of the axis of the higher range of the mountains and the direction of the flow of the rivers, have determined the regions for the growth and development of civilization in the Indo-Chinese Peninsula.

Very early in the history of the Indian civilization, three great political divisions were mapped out. The Indus Valley lies close to the mountain orifices through which passage was easy for the movement of small streams of nomads and military adventurers. This valley lay open to the political and cultural influences from Central and South-West Asia. If the gateway of India was successfully pierced, then the way was open to the plains of Hindustan which has always been the largest and the most populous of the political divisions of India. The third was peninsular India south of the Narbada.

The Indus Valley was a desert region for over a millennium until the face of it was changed by modern irrigation towards the end of the 19th century. The riverain civilization developed in the Gangetic plain and the deltaic parts of the eastern peninsula. The latter became the focus of the ancient civilization of the South where flourished the well-known Southern Kingdoms. Generally, the population of a small deltaic area shows no tendency to spread. It lacks massiveness and strength to thrust itself upwards. Also its gaze is sea-ward and not land-ward.

In contrast to the deltaic civilization, the riverain civilisation of the North rose to great heights of achievements and splendour. Successive attempts were made to build around it a universal State embracing the whole of India. This attempted unification from the North met only with a partial success even though the balance of forces favouring unification lay in the North. The North had an inadequate appreciation of the geographical character of peninsular India and it had no sea sense. Again no northern land power solved the problem of maintaining effective lines of land communications and military posts between the North and the South. The Sisyphean attempts of the North in the pursuit of the ambitious task of political unification of India failed largely on this single issue of inability to develop successful lines of communication by sea, water transport and by land.

Peninsular India brings home the fact that India faces the Indian Ocean and has an extensive coastline. The sea, however, exercised a negligible influence in welding the South and the North of India. Transportation by sea except in the coastal areas round the southernmost tip of India, was practically negligible. Further, with the exception of Ceylon there are no islands dotted along the coastline. The peninsula is not deeply indented and there are no inland seas. From the sea there are no routes of inland navigation. Hence the absence of water-way communication from the peninsular area piercing the northern plains.

Irrigation system was developed very early in the North as well as in deltaic areas but its continuous progress appears to have been arrested. There is little evidence to show that advancements in methods of flood control and hydraulic engineering were progressively achieved. There has always been a limited extent of transportation on the great northern Indian rivers but in the absence of a network of canals, transportation and communication were insufficient to weld together large areas under a central administration.

A brief delineation of the contour lines of land communication will indicate the nuclear areas of political power which have persisted for long in Indian history. The Mauryan Empire understood the importance of communications under a centralised empire. The imperial highway from Pataliputra to Taxila connected the Central Asian routes through the Hindukush. A concomitant of the rise of a centralised empire in the north, was the revival of the trunk communications from east to west. This happened under the rule of Sher Shah Suri and of the Moghuls and in the 19th century under the British. In the opposite direction, that is from Central Asia to India, the traditional route crossed the Indus at Attock, hugged the submontane regions to the north and after intersecting the five rivers of the Punjab the route converged on Delhi. The Central and Southern regions of the Punjab were desert areas and attracted fewer adventurers and if any one entered through the Gomal Pass, then the Indus was crossed at Dera Ghazi Khan and passing through Harappa the road to Delhi joined at Kurukshetra.

There was another route from the midlands of the North to the western sea-board whose ports connected with the outside world. This route manifested itself from the Buddhistic times. Originating from Bihar it passed through Allahabad and then to Bhilsa and Ujjain, both now in Madhya Bharat. After crossing the Vindhya, it followed closely the bank of the Narbada to its mouth at Broach the port of which was known on the ancient maps as Barygaza.

Yet a third and an important route was from the Malwa Plateau to the Deccan. This was an easy line of communication for migratory movements from the midlands to peninsular India. It is not without significance that the Deccan lava is spread over the Malwa Plateau. The traditional route from the North to the Deccan followed the lava belt of the Southern tableland and very early it was used by the cultural missionary from the North to be subsequently followed by military conquerors. The Aryans, the Moslems and the Moghuls found lodgments in the Deccan lava area where they reproduced the conflicting patterns of the North. One consequence of pursuing the easy line of communication to the South was that the area known as Gondwana remained isolated till recent times.

These three trends persisted in the Moslem and Moghul periods. When power was organised on Delhi-Agra axis, the movement of Islam to Deccan was through the lava area. Gujarat was reached from Delhi through the Aravalli gap. From the west coast of India the main line

of communication lay through Khandesh territory from whence the Narbada was crossed and the Malwa region was entered near Mandu. The Moghul highway then lay through Ujjain, Sarangpur, Narwar, Dholpur and Agra.

Such was the partial development of lines of communication having regard to the basic geographical needs of the country. History had to wait till the 18th century when Britain successfully demonstrated that it was possible to unite India starting from the peninsular South. British Power used the Deccan tableland as a base and penetrated into the Gangetic plain from the coastal areas, thus reversing the long established tradition of the North where power had first to be organized in the North-West and then advance eastwards. Power organised on Delhi—Agra axis fanned outwards whereas power organised on sea communications fanned inland. Later on, when India was closely knit by modern communications the agelong difficulty experienced in advancing to peninsular South by land communications was finally overcome.

II

Political and military organisations require communications but not so the drift of population. It would be reasonable to expect that the densely populated areas of the Gangetic basin would have played a preponderating role in the physical unification of the South. The northern regions had space, population and elements of higher civilization, and these in combination should have united India into one organic pattern. Why did not this happen? A categorical answer may not be easy as no set explanation can wholly explain the complex forces of Indian history. There are, however, two persistent trends in the political geography of India which have an interpretative bearing on this question. Firstly, the axis of the North-Indian civilization lay from West to East; it is difficult to establish the contrary principle that it lay from North to South. The movement of population was lateral and not vertical. Such a movement exerted little population pressure on even the midriff of the continent, let alone the more distant South.

The reason for this is to be sought in what is the most momentous and far-reaching aspect of the history of the North for well over 1,500 years. Unlike some other riverain civilizations, the plains of the North did not lie on the direct march of the nomadic peoples of history. The Steppe and the Sown had no contiguous boundary thanks to the Himalayan shield but the north-western regions of India were not completely insulated

against nomadic eruptions. The Hindukush constituted the divide between the Punjab and Central Asia. This is a long, well-established principle of Indian geopolitics.

North Indian civilization had perforce to deal with two types of nomadic movements. One was the folk migration of peaceful pastorals who were absorbed into Hinduism. The other first established its political rule in the southern slopes of the Hindukush and then penetrated into the Gangetic plain. Before the Islamic period these nomads were either over-thrown or they were thoroughly Indianized.

The nomadic impacts impaired the political unity of the North and the energy expended in repelling the invaders or absorbing them weakened the process of internal consolidation. As civilization developed in the North, it fell into three separate regions. In the Punjab and the Indus Valley, Indian civilization had to yield substantial ground, culturally and politically, to the nomads. This area became a very important march-land between Central Asia and the seat of the hard core of Indian civilization which was located in the midland portions of the North. On its progress towards the east, Indian civilization lost considerable momentum due to the emergence in the very early times of Buddhism and Jainism—both dissentients from the Hinduism of the midland. Culturally the eastern parts of India were incompletely flooded. Hindu culture had not sufficient strength to absorb the tribal elements which it encountered in the higher reaches of the Bengal plains. More significantly, at the peripheral regions of the east, Hinduism failed to confer a protective cultural armour on the local population. As a consequence, Islam was able to penetrate in depth in this outlying area, whereas in the vast intervening regions Islam was unable to make any impression on the Hindu masses in spite of the advantage Islam derived from its political ascendancy for many centuries. The loss of vigour in the eastward march of cultural Hinduism towards the geographical frontiers of India may be safely presumed.

The early manifestations of these three divisions are today vividly illustrated when a map of India is examined showing communal concentrations. The north-western region is now Islamic. This is the region often lost to Central Asian nomads and later culturally to Islam. The midlands and the eastern portions are predominantly Hindu but at the eastern extremity Islam, Tribalism and Hinduism jostle in a confused medley.

The Central or the mid-land of the North known as Aryavarta—the sacred land of the Indo-Aryans—is traditionally described as lying between the Himalayas and the Vindhya. From the beginning it began to suffer from a lack of balance, steadily losing its influence on the north-western region, and failing to achieve consolidation of the eastern regions. The Vindhyan barrier set a limit to its maximum efforts. The midlands also failed to exert population pressure on the contiguous regions in the Central parts. In proof of this we there witness the existence of tribal people in the confused jungles and hills and of the still continuing process of displacement of tribal languages by the dominant Aryan languages.

The Indo-Aryan civilization of the midland would have been cut off from the outside world but for the balancing role played by peninsular South which for long periods was not in political union with the North. The people of the west and the east coast of India promoted oceanic voyages and established contacts with India's neighbours. India's culture was spread far beyond the confines of Aryavarta. This balancing factor of peninsular India is a permanent feature of Indian geo-politics.

III

An attempt may be made to recount briefly the experience of China which also commenced its history of unification from the plains of the Yellow River from which Chinese colonists appeared to have moved south subjugating land for agriculture and assimilating culturally the indigenous inhabitants. The bulk of the people of China, as we know today, dwell to the south of the original homeland. There are five main persistent trends in China's attempts at unification. They are (a) the relation between the Steppe and the Sown; (b) the establishment of feudal bureaucratism; (c) the development of hydraulic engineering including transportation and communications; (d) the emergence of a central key economic area dominating over the other regions and (e) unification by language and culture.

(1) The Steppe and the Sown

A major historical event in the history of India as well as of China is the prolonged duel with the barbarians erupting across their northern borders. The nomadic attack in the pre-Islamic period of world history was not launched by organised States. There was a collision of people leading to the coalescence of cultures. The Chinese showed awareness to the movements of the nomads and resorted to diplomatic and military

measures to meet the situation. It is an acute observation of Owen Lattimore that the Great Wall was intended to check the drift of Chinese groups towards coalescence with nomadic life or the formation of mixed economies. Chinese political philosophy was not in favour of fusion between the Steppe nomads and the Chinese agriculturists. It was not always that the Chinese succeeded but apparently they had a very clear conception as to how they should deal with the nomads. The Chinese attitude was much less passive than that of the Indians who tackled the nomadic problem as it arose when the nomads actually pierced the entrance into India and menaced the security of the midlands.

(2) Feudal Bureaucratism

Nearly two thousand years back, the Chinese understood or discovered that centralised State power with potentialities to break up any possible coalition of feudal lords and with capacity to guard the frontiers and carry on large public work projects had to depend on a competent and learned civil service the recruitment to which should have nothing to do with birth. "*The carrière ouverte aux talents* was a Han discovery". The emergence of a Central bureaucracy, learned and loyal to the State, prevented the establishment of feudal families and effectively frustrated the ambitions of revolting servants of State converting their offices into hereditary rulerships, such as the Carolingian Counts in medieval Europe or the Muslim and Mahratta 'War Lords' following the collapse of the Moghuls in the 18th century India. The continuance of feudal bureaucratism was assured even though authority disappeared at the top by the dissolution of dynastic rule. A stable bureaucratic structure made possible from earliest times the administration of territorial units directly by the Central Government. After making allowance for the working of the centrifugal forces till the 12th century, the Chinese pattern of administration settled down in favour of directly administered units from the Centre and thus there was no room for territorial fragmentation by subordinate sovereign authorities.

(3) Hydraulic Engineering and Transportation

Chinese feudal bureaucratic society came to rest on intensive agriculture requiring irrigation. Hydraulic engineering and water control became a function of State authority and this augmented centralised State power. Political power acquired a close connection with regional geography. Unlike the Collector under the British Indian administration who had to look after the fiscal interests of the State and maintain law and

order, agriculture and bureaucratic administration attained close co-ordination from the Han period onwards. Whoever might rule, the scholar-gentry had to administer the affairs of the State in his region. The administrator was possessed of mastery over written language and he was the repository of all technical knowledge relating to hydraulic engineering. This promoted continuity and progress of agriculture and irrigation even during the periods of fragmentation of political power and of unrest.

The magnitude of the water-way communication under such persistent efforts will be appreciated when recounted that China had 200,000 miles of canal system, the greater part of which was located in the Yangtse Valley. This gives a measure of the transportation and irrigation system and its bearing on the agricultural life of the community. By way of illustration a quotation may be given from a Chinese work of the 6th century A.D. giving a glimpse of the early irrigation and transportation system.

"From Shanyang to the Yangtse River, the water surface of the canal was forty paces wide. Roads were constructed along both banks and planted with elms and willows. For every 2,000 *li* from eastern capital (Loyang) to Chiangtu (modern Yangchow), shadows of trees overlapped each other. An imperial resting place was built between every two post stations, and from the capital of Chhang-an to Chiangtu there were more than 40 such pavilions."

(4) Central Key Economic Area

It is not difficult to see under such conditions that unity and concentration of State power simply meant the control of an economic area where agricultural productivity and facilities of transport promoted centralisation and easily assumed a superiority over other areas so that anyone who controlled the key area was able to control the whole of China. In Chinese history such a key economic area has played a decisive part in the political unification of the country. When the unity of northern areas of the Yellow River basin failed after the Han rulers, the central regions of the Yangtse Valley had enough economic power and viability to assume an independent centralisation. For nearly seven or eight centuries the centripetal and the centrifugal forces operated as a seesaw wherein the north and south of China tried to find a balance and equilibrium. Even when the capital was shifted from north to south, the tendency was for the south to try to unite with the north. For the fourth time, the unification of China was brought about under the Mongols in the 13th century since when

all splintering within China came to an end. Such has been the persistent tradition of unity in the Chinese history in spite of vastness of territory.

(5) **Unification by Language and Culture**

As culture and writing developed in China, the written characters became universal; the existence of dialects and mutually incomprehensible forms of speech ceased to be an impediment. In such a case the tendency to unity must dominate. Moreover, paper was invented as early as the first century A.D. and China led the way for the civilized world by the development of printing. Confucian classics appeared in wood blocks from about 930 A.D. leading to wider diffusion of books and consequent spread of learning throughout the country—a fact of tremendous significance in the cultural unification of China's vast areas.

If we take all these factors into consideration, the opening words of the article on China in the Encyclopaedia Britannica that China is 'the largest cultural unit on the face of the planet' are singularly appropriate.

IV

Northern Indian civilization did not spread as a result of pressure of population or by streams of migrants or by conquerors imposing their language and culture. Southward, it spread by cultural drift. The South had a highly civilized society antedating the Vedic Aryans of the North. The South willingly became a cultural colony of the North. The phenomenon of the cultural assimilation of the South is illustrated by an excellent dictum of the American anthropologist, Franz Boas:

"A people may remain constant in type and language and change in culture; that it may remain constant in type but change in language; or that it may remain constant in language and change in type and culture."

The physical type of the Aryan speaking people was submerged in the somatic character of the indigene. The lasting gift bequeathed by the Aryan speaking people of the North was neither a higher material culture nor a superior physical type but a more excellent language and the mentality which generated it.

It is not therefore to the demographic factors or the political history but the linguistic history of India to which we have to turn our attention to understand how cultural unity was established between the North and the South. There is a complete linguistic break between what is termed

the Aryan languages of the North and of the Deccan lava and the agglutinative languages of the Dravida group. This major linguistic division should have proved a formidable barrier hindering the unity of civilization of the entire sub-continent and should have set up wide cultural differences such as the Slavic, Teutonic and the Romance languages have done in Europe. Fortunately for India it has not happened and is a fascinating chapter in the linguistic history of India.

The Dravida languages represent a very high stage of development in the evolution of human speech but their role was confined to familial and social purposes. The pride of place and primacy was given to the more dominant Sanskrit. The general tendency amongst languages appears to be for the easiest and the socially more useful to supplant the more difficult or the less useful. The Dravida speaking people of the South met the most challenging of all cultural problems by choosing to be bi-lingual.

The spread of Sanskrit as the vehicle of a superior culture is a primary contributory factor towards the unity of India. This aspect of the unification of India by a dominant language is by no means a novel or a fanciful view; it is rooted in the peculiarities of Indian history. Under the Moslem rule the North was overlaid with a thick paste of Persian culture; Sanskrit ceased to be its living language. When political India was divided into the Moslem dominated North and the Hindu South, Sanskrit was the cultural link between them. The emergence of English under British rule as the common *lingua franca* re-emphasized the previously well-established principle that unity between the North and the bi-lingual South could only be maintained by a language culturally so dominant that it is the highest vehicle for thought and culture.

One has to take a text book of Indian History to see how the political dichotomy between the North and the South is laid bare. The history of the North and the South is unintelligently divided into two separate worlds of kings, dynasties and chronicles. A point which has received little attention is the divergent historical processes in the two regions and their imprint on the minds of the people. What is the most significant difference in the historical experience of North and South?

Unaided by peninsular India the North was not able to perform its historic role of taming and civilizing the barbarians. The situation worsened when a weak and politically divided North faced Islam in the

12th century. The North alone had not the strength nor the defence in depth to deal with the Islamic onslaught. The political fragmentation between the North and the South was complete during the Moslem period. Only with the moral resources of the country as a whole could India have confronted the Turkish marauders under the militant banner of Islam from the 12th to the 16th century. The impact of Islam altered in a short time the entire face of North India.

These experiences were not peculiar to India. Islam in less than half a century overran the then known world from Gibraltar to Central Asia. It was as though an electric current had been switched on from a power-house in Arabia. The Saracens under the banner of Islam were poised on a strategic arc in the East and held for centuries Western Christendom at bay. A united Western Christendom fought in the middle ages the politics of Islam. At the farthest end of the European world, Islam entered China in the Tang period and the Moslem population in China was replenished at intervals by small streams of migration from Turkistan. "Islam in China had to conform to Chinese notions of the place of religion in the State." The Chinese Moslem communities were politically assimilated without losing their cultural identity. It was a politically feeble and disunited north India which confronted the politics of Central Asian Islam. Consequently, in the north Hinduism had to fall back, for overthrowing the political dominance of Islam, on a long process of attrition in time and by numbers. The politics of Islam responded to this challenge by fortifying the Moslem religion with the culture of Persian language and equipping itself with a strong protective cultural armour against the insidious inroads of dominant Hinduism. It is true a kind of synthesis of culture took place; the co-called composite culture—an imperfect blend of Hinduism and Islam—somewhat narrowly restricted to political and social purposes. Islam remained an unassimilable force and it has been aptly put that "the sponge of Hinduism failed completely to absorb it".

There ensued for long an incessant duel between Hindu and Islamic minds. Loss of political freedom apart, the Hindu soul was badly seared; there was obvious cultural degradation. The Hindu in mind and spirit had to renew himself if he had to survive. Hindu revivalism in the North expressed itself largely in the Bhakti cult and religious emotionalism to give strength and sustenance to a withering soul. It is very significant that all movements of Revivalism and Renaissance in the Islamic period and

even in the 19th century were confined to the North with little application to or influence on the South. We have yet no clear idea of the profound effect of the alien impacts on the structure of Indian society. Certain it is that the glorious mansion of Hinduism in the days of its pristine glory was forced to admit many socially undesirable tenants. The North had no respite from the process of absorption and the consequential social adjustments.

During these periods of trials and tribulations in the North, the South remained culturally most stable. There was no inner conflict in the mind of the Southerner for the northern conflict had little repercussion on the South. The South settled down to a long period of the Hindu way of life, the traditional and ancient forms of which were enforced rigorously by the Brahminical hierarchy with all the authority and prestige of the ancient law-givers of the Aryan North. The South was able to retain a mature and poised mind, able to assess the fundamentals of spiritual and human problems with rationality and without any frustration. Elsewhere, wherever the conflict between Hinduism and the alien forces was intense, the resulting clash of culture and the contact of races developed a split personality.

V

This, then, is the final summing up of India's long and determined quest for unity. The physical and population differences between the North and the South did not lead to a major break in the social and cultural continuity of the two regions. Within the framework of a universal civilization, shaped and conditioned by history and geography, there came into existence from very early times two foci of culture in India. The North attempted but failed to unite the South ; the South by itself had not the resources to unite with the North. North and South were never divided on a mutually antagonistic basis. On the other hand, the cultural life of North and South developed on a co-ordinated existence and jointly —never separately but always in unison—they advanced the fundamental unity of India.

The unity of India is a passionate theme. The disunity of India was the standard imperialist argument against nationalist claim for a united India. It suited the imperialists to deny the unity of a country over which they held dominance. The theorists of the Austrian empire were wont to prove that Italy was a geographical expression; the Englishman, Sir John Seeley asserted "that India is not a political name but only a

geographical expression like Europe or Africa." Such a theme was naturally repudiated by an exposition of the fundamental unity of India's culture and civilization amidst its prolific diversities. The working of the historical forces in the last one hundred years has demonstrated that the political and economic unity of India is natural because it is 'in response to its geography'. Aided by Western Science, these forces in the course of transformation of Indian society have applied correctives, removed obstacles and facilitated unification. Of these *five* stand out in prominence. Firstly, distance has been conquered by the network of railways, tele-communication system and aviation. Physically, India has been knit so closely that no soldier or politician or administrator would say that the physical character of the country makes it hard to hold or govern it. With the withdrawal of the British imperial rule over India, the political rule of the subordinate sovereign authorities came to an end. The people of these areas joining hands with the people of the rest of India made a silent revolution by wiping out in an incredibly short time the age long curse of territorial fragmentation. Thirdly, India possesses one of the finest administrative machinery in the world and its defence services have a record of magnificent services of which any country may be proud. Fourthly, those areas in the North long lost to Central Asian Islam seceded from India by agreement when it was realised that it was not possible to maintain national unity over them. Fifthly, Indian society is no longer continental. It is being welded into a national society. Nationalism is the vital force, the basis of Indian unity. Secular nationalism based on democracy is the surest guarantee for holding together the elements which go to make India a great nation.

"India", wrote Mr. Nehru, "was like some ancient palimpsest on which layer upon layer of thought and reverie had been inscribed and yet no succeeding layer had completely hidden or erased what had been written previously." There are *three* such writings of the past which continue to have a bearing on India's unity. The first of these is the national language. India's past has shown that what promotes powerful unity is the acceptance of a language of such a dominant character as to meet her highest cultural requirements. The position in this respect has not changed during the last twenty-five centuries. The regional languages have not hitherto promoted group rivalries. In Europe language in association with ethnical and racial groups has led to explosive nationalism. India fortunately has no racial problem. The national

language and the cultural problems associated with it will have to be handled with understanding, sanity and maturity.

The partial functioning of the demographic factors has left large islands of primitive people in the north-eastern, central and southern parts of India. The assimilation of these elements into the present day democratic society is a problem of importance and this legacy of the past must be handled with care and understanding.

Thirdly, the role of peninsular India must be better understood; more so with the amputation of the Islamic limbs in the North. The peninsular part in the past orientated India's gaze to the world beyond the shores of her seas. That period has been one of the greatest epochs in the history of India. To quote a recent geographical authority:

"How false is Lyde's still current concept of an almost solely inward looking India, with its sea contacts with those of alien traders, may be seen from the fact that the decline of Sailendra was due in large part to an attack by Rajendra Chola II (1012—44); the Cholas were driven out after a century of intermittent war but in the 13th century a disastrous expedition against Ceylon fatally weakened the power of Shri Vijaya. These armadas presupposed high standards not only in navigation and seamanship, but in naval organisation on both sides of the 1200 mile wide waters between Coromandal and Sumatra. Certainly no European power of the day would have dreamt of such oceanic adventure; only the Viking voyages are as impressive, while the Crusading fleets were in comparison mere coastal forays. On the terraces of Borobudur, the carved ships of Shri Vijaya still sail, immobile and endlessly, over their seas of stone."

The peninsular regions remind India that her interests are oceanic. The sea lanes are lined with the maze of internal transportation system of modern India which handles the vast bulk of sea-borne trade vital to her economic life. India's vision cannot stop at the Himalayas and the Indian Ocean. India has to be intensely curious of the happenings beyond her borders. An exterior conception is vital for the maintenance of peaceful international relations.

DISCUSSION

COMMODORE R.D. KATARI, IN: Do you think that Hindi will be a unifying force? Would you say that the present Hindi is as dynamic a language as the old Sanskrit, or even of the English of a century ago, to be able to exercise an effective influence over the whole of India?

THE LECTURER: Hindi as a national language will be a unifying force. But it will not adequately fulfil that role if it is just a common lingua franca such as for example the Malay language is from the Philippines to Madagascar. Hindi is yet to be developed as a superior vehicle for the expression of the highest cultural forms.

Lt. Col. M.L. THAPAN: Will linguistic provinces help?

THE LECTURER: I do not think that the linguistic provinces by themselves will be a unifying factor. They have to be held together by centripetal forces.

MR. J.S. BALI: How was it that the delta regions of the South did not have the same influence as the delta regions of the North?

THE LECTURER: The delta regions of the South were smaller areas by contrast to the powerful riverain civilization of the North Indian plains. Consequently the seat of influence always lay in the North.

MR. J.S. BALI: Since there was nothing to control the South from the North, how is it that the South did not completely cut itself away from the North?

THE LECTURER: My answer is contained in the proposition I have put forward that the cultural and linguistic unity of India was so dominant that it transcended the lack or absence of political unity between the North and the South.

THE CHAIRMAN: I would like to thank Mr. Venkatachar on behalf of the U.S.I. for his talk today. He has given us much to think about. When the lecture appears in the Journal it will give us a further opportunity to study the amount of research he has put into it. (*Applause*).

CONTROLLER GENERAL OF DEVELOPMENT AND PRODUCTION

BRIGADIER B.D. KAPUR

WITH the present emphasis in India on indigenous production, it is important to consider how defence requirements can be met indigenously. It is generally felt that the potential for the development of military equipments exists in the country ; what is probably required is an organisation which can bring about a closer association between the development and production agencies, so that with a better understanding of the requirements, development of production may be speeded up. This matter is examined in detail in this article.

THE EVOLUTION OF EQUIPMENT

Before the proposed organisation is discussed, it is necessary to have a clear knowledge of how equipment is evolved. Generally the process is as follows :

1. A General Staff specification is produced in simple terms as to what is required to meet the tactical requirements. This document known as the Qualitative Requirement (QR) details in brief the functional characteristics of the equipment required.
2. A technical specification is drawn up whereby the General Staff specification is translated into a suitable form for development to proceed. This responsibility rests with the user technical department, which consists of officers with a high measure of technical training directed towards design and development of equipment.
3. The equipment is then developed either by a service establishment or by a manufacturing concern which is given a development contract. In the case of the latter, the necessary guidance is provided by the Service development establishment concerned.
4. Then come the technical examination of pilot models and their field trial. These are two important functions. The technical

standards establish the sturdiness expected of military equipments under trying conditions of field service. The user trials give an opportunity to the soldier, who has finally to use and operate the equipment, to assess it. It is not uncommon for troops to turn down equipments, which have passed technical trials.

5. The final specifications are completed and large-scale orders for the equipment are then placed.

The process is not so simple as it sounds. After the 'user' has indicated his requirement, a series of discussions between the user and the technologist are necessary to finalise the requirement. The next stage is the construction of a few field models. When these are put through technical trials, modifications become necessary. Then user trials may cause further modifications. It is after the prototypes have been approved, that drawings are prepared for production. In complicated equipments a large quantity of drawings are required; *e.g.*, for a 6-pounder gun, 1,000 blue prints were required, for a tank about 80,000 prints.

The Place of the Technologist

In the evolution of equipment the technologist has a special and important role. Sometimes there is a tendency to confuse his role with that of the scientist. The scientist has in general a consultative role and is concerned more in general concepts, in their application to war. The service technologist on the other hand must have practical experience of how to translate a General Staff specification into an actual equipment or store. He has not only expert technical knowledge but also knowledge of warfare generally. His technical competence must be unquestionable. He should be able to criticise and explain and to receive the products from outside organisations, so that he could decide what the services could have, and not leave it to the technicians outside to give what they consider feasible.

His other very important function is to tie in with the producer. As ease and cost of production are important factors, the design has no value unless it has the approval of the producer. The technologist is therefore influenced by the 'user' on the one side and by the producer on the other. The economist is always there to ensure that the cost of production is kept down. Thus the evolution of equipment is dependent upon the close relationship and team spirit among the 'user', the technologist and the pro-

ducer, not forgetting the economist who keeps a watchful eye to ensure that the expenditure is justifiable.

Inspection Agency

Very closely geared to the technical department echelon is 'Inspection'. The intelligent application of standards laid down by the technical department is the responsibility of this agency. An important principle on which inspection must be based is that it must be elastic; just as *rigid* exactation will slow down production, weak inspection will jeopardise the interests of the 'user'. To find an answer to this conflict of interests, technical officers concerned in inspection must have *real* knowledge both of the essential military qualities of an equipment or store and of the problem of production imposed by its manufacture. For an inspection agency to be sound, it must be independent and must have officers who have a good grounding of military knowledge.

THE ROLE OF THE SCIENTIST

The main role of the scientist is to concentrate on *Basic Research*. To draw the line between basic research and technical research a definition of these terms is essential. A well-known authority has defined them as under:

"*Basic Research* or fundamental research is the seeking after new knowledge of a broad and general character. Seeking after the principles of broad application rather than the narrowness of the specific."

"*Technical Research* or engineering research is the application of new knowledge or previously existing knowledge to new things."

It is in the sphere of basic research that he perseveres to satisfy his scientific curiosity and thus establish a new basis for technical research. The results of his investigations which may have immense value to the services, need to be collated by the Defence Scientist. Due to the close liaison the scientists have with the services, they know the problems of the services and thus should be able to offer a solution by a study of the whole field.

Lt.-General Ronald M. Weeks in his book "Organisation and Equipment for War" has enlarged on two other important functions of the scientists:

- (a) consultants to military staffs in determining their equipments policies,
- (b) operational research studies to assess the 'behaviour' of the equipment.

In order to keep a check on the General Staff's demanding scientific impossibilities, the scientist's advice is of great value. But in the late war they extended their sphere of activity to study the 'behaviour' of equipments under war conditions. Such studies included the behaviour of gunfire against men and equipment under field conditions, improvements on radar, percentage of wounds caused by precision aimed weapons. The data collected made a considerable contribution to the fire plan for the Normandy landing ; many improvements have been made on radar ; and the question has now been raised that if only 16 per cent of the killed in action is due to precision aimed weapons then why waste time and money on training the soldier in marksmanship ?

I have elaborated on the functions of the scientists because : firstly, it is important that their place in respect of equipments should be realised and, secondly, there appears to be a tendency to regard scientists as technicians. In this regard I wish to quote Lt.-Gen. Weeks again :

"The absolute necessity for the scientist never to allow himself to be considered the technical or weapons expert, when he would tend to lose to some extent his position as an independent adviser or a critic."

It is the scientist-cum-technologist team that achieves the results. They should work in close collaboration but keeping to their own spheres of activity.

THE PRODUCTION EFFORT

In an article on 'Defence Production' published in the January 1954 issue of the Journal the writer suggested that planning for defence production should be raised to the national level and also touched on the necessity for a competent organisation between the user and the producer. In this article it is my aim to suggest how the production effort can be made effective. Those readers who are interested in understanding the problems of mobilising production for war should read two excellent articles written by Brig. B.M. Kaul under the heading 'Economic Mobilisation' and published in 1949/50 issues of this Journal.

In production, the formulation of detailed policies such as the co-ordination of existing facilities and development of potential facilities, stock-piling of raw materials or their development, and production of machine-tools are the concern of the Government. Therefore a Government organisation to carry out these functions is inevitable if quick results are to be achieved. These matters cannot be dealt with by the factories.

There appears to be an impression abroad that production of equipments is made possible by setting up a series of factories. Besides Governmental policies concerned with production matters, an organisation is essential between the user and the producer to act as interpreter of the requirements and form an intimate link between the two. Lack of appreciation of the responsibilities and the importance of this vital set-up, is the main cause of delay in indigenous production. This aspect needs detailed examination and is examined further.

Services' requirements are met by manufacture of equipments and stores by:

- (a) Ordnance factories which mainly concentrate on the production of armaments and ammunition.
- (b) Government factories which are not entirely the concern of Defence, such as the Hindustan Aircraft Factory and the Bharat Electronics Ltd.
- (c) Commercial firms which undertake development and production for Defence, for example, the automobile industries of India.

Where Ordnance factories are concerned the user technician is already established close to them. But as the factories and the technicians are controlled by entirely separate agencies, close co-ordination for the smooth flow of equipments is not possible. As has been explained above this technical department is vital for the achievement of maximum indigenous production, but unless the administrative control is unified under one head development and production will look askance at each other. This impediment can be easily removed by an administrative reorganisation ; that is by bringing the control of the technical development department and the Ordnance factories under the same authority.

Having established the place of the technical department and its role in the achievement of self-sufficiency, its relationship with government factories and commercial firms should now be examined. As already stated the relationship should be intimate and this can only be brought about by an expansion and integration of the military technical echelon with the manufacturing concerns. Lack of appreciation of the specific requirements of the Services is the main bottleneck. Even when the specifications are stated technical guidance is required for complex equipments. Selected commercial firms which show the potential for development of specific

services' needs should be guided by the army technical department. From this arises the necessity for the supply organisation to be associated in some form with the proposed organisation.

SUPPLY ORGANISATION

Before attempting to link the supply organisation with production, it is necessary to have a background of equipment planning.

Equipment planning entails specification of equipments from the user angle, and the determination of the scales for issue. These two form the basis of all equipment planning. Any amount of effort expended in assessing these correctly can be fully justified, as the results can lead to large economies, whilst the fighting efficiency of the troops is also ensured. During war, as the intention is to acquire any equipment which meets the general specifications, large varieties of the same item under different nomenclatures are accumulated in stores. The tendency to persist in issuing all these nomenclatures leads to unnecessary expense and labour down the chain of command. Also to perform the same function a large variety of items come into use.

The inference to draw from the above is that both the nomenclatures and the user requirements should be standardised at the highest priority if economy in labour, economy in production and economy in use and maintenance are to be exercised. The amount of all-round effort that can be saved is seldom appreciated. In the United States, the American Army Supply Standardisation Organisation by standardising the specifications of the blankets for the three Services effected a saving of millions of dollars a year. Thus it will be seen how sound equipment planning is linked with supply.

To stretch this point further, the user, the Supply Agency and the Producer should have a close relationship. The necessity for the user to specify his demands on the one hand and to accept the product on the other, makes his integration with the supplying agency desirable. I can elaborate this further from a little experience I had in 1953. When on a deputation in the United Kingdom, I visited an electronic component manufacturers' exhibition. Enquiring from the established Manufacturers of condensers, who had been meeting the Army demands of this component in the past, as to why they could not meet our current requirements, the reply was: "We are prepared to meet your requirements, in a different form. But your inspectors insist on the same physical dimensions as laid down under

the old specifications. We are prepared to certify that the new product would meet all the physical and electrical requirements, but they adhere to the written letters."

Thus it would be clear that if the same user technical effort which is expended on ensuring production to standard specifications is also directed towards procurement in the same open and helpful manner, the problem of supply would be made easier. It is the 'Inspection' echelon of the technical agent that is responsible for this function. How important therefore it is for the supply organisation for the Services to be linked closely with the general equipment organisation of the Services.

A SUGGESTED ORGANISATION

Having established the relationship between development and production and the necessity for both to be under one head for quick results to be obtained, it would be of interest to give an outline organisation of the set-up envisaged by the writer. Chart I explains the outline organisation including the Supply Department. No ranks are indicated. It is suggested that to start with, the Controller General should be of the rank of Major-General or equivalent and the Directors Colonels or equivalent, except the Director of Supply who in view of his extensive financial responsibility should be of the rank of Brigadier or equivalent. When, however, the organisation expands to full size, every appointment should step up by one rank. It is envisaged that the organisation will have officers from the three Services and also from the Administrative Service and a certain number will be transferred from the existing Supply Department. If this change over of control of the Services Supply is accepted, corresponding changes will require to be made in the overseas supply echelons.

Chart II gives an indication of how the close relationship between the user, designer and producer will be established. All the Committees shown will be headed by the Officers of this new Organisation. The Committees in session will draw their authority from the Ministry of Defence, on behalf of whom they will function. Of course, the ideal would be to put this whole organisation under a separate Minister of State with a small Secretariat.

CONCLUSION

This is by no means an exhaustive study of the subject under consideration. But I hope this will give some fillip to an active consideration of this

CHART I

CONTROLLER GENERAL DEVELOPMENT, PRODUCTION & SUPPLY

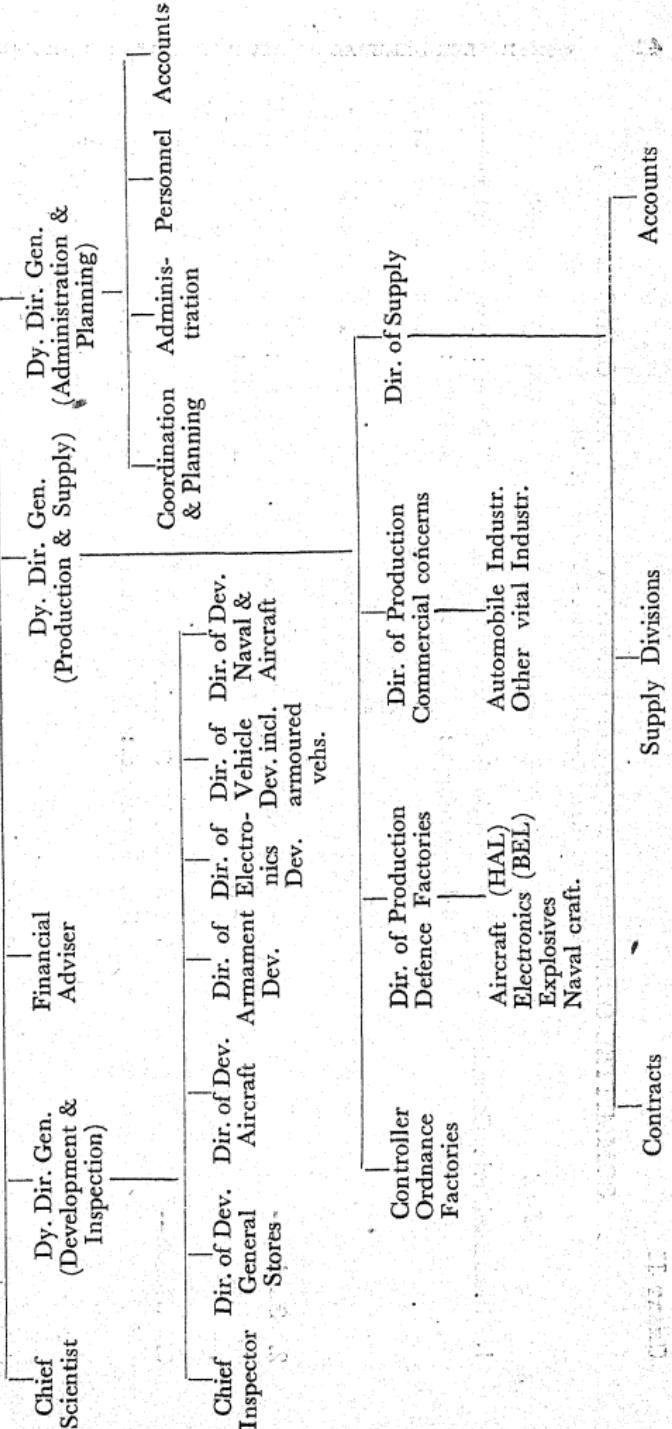


CHART II

COMMITTEE CONCERNED WITH GOVERNMENT POLICY AND CLOSE LIAISON,
AMONG USER—DESIGNER—PRODUCER.

<i>Level</i>	<i>Committee/Sub-Committees</i>	<i>Suggested Membership</i>
1. Inter-ministerial Committee—	Defence Production & Supply Committee Sub-Committees : Electronics Vehicles Armament Explosives General Stores Priorities	<i>Chairman</i> : Ministry of Defence Members : CGDPS Dy. Chief of Staff Industry & Commerce Ministry Production Ministry
2. Services—	General Staffs Equipment Policy Committee	<i>Chairman</i> : Dy. Chief of Staff Members : Ministry of Defence CGDPS or rep. and Service Members
3. CGDPS—	Standardisation Committee Sub-Committees : Electronics Vehicles General Stores	<i>Chairman</i> : CGDPS Members : Dy. Chiefs of Staff Ministry rep. Officers of CGDPS
4. CGDPS—	Equipment Development Committee Sub-Committees : Gen. Stores Armament Electronics Aircraft Veh. development	<i>Chairman</i> : Dy CDPS (Dev.) Members : Services rep. Dy. CDPS (Prod.)

new organisation. "How to make a start?" seems to have been the problem. If the right man to lead the organisation can be selected, a beginning will be made. Or perhaps a team of officers representing various branches of the organisation envisaged, under the leadership of a senior officer of the Services, may be set the task of preparing a suitable organisation. It will be appreciated that if the team has to make a thorough study in India and abroad, it will take them at least six to nine months to prepare the report. But the writer is convinced that the sooner a beginning is made, the sooner we will save crores of rupees and be on the direct road to achieving self-sufficiency.

and the small number of men in each unit, and the low cost of maintaining such a force. Theoretically, the militia is to be recruited from the peasantry, and the men are to be armed with rifles and bayonets, and to be equipped with pack animals or bullock-carts as load carriers. The militia is to be used as a mobile force to harass the enemy, and to be used in the field of operations to dislodge the enemy from his positions.

A MILITIA VERSUS A STANDING ARMY

BRIGADIER G.I.S. KULLAR

A THEORY has been put forward that in view of the general political and economic conditions which prevail in India today, we should disband the greater part (about four-fifths) of the present small regular Indian Army and in its place raise a large National Militia.* This has been urged mainly on the score of economy and our present dependence on foreign countries for our major military equipments. The measure suggested is an interim one and it is proposed to return to a fully mechanised modern army as soon as our indigenous industry can deliver the goods. The theory has not been put up as a counsel of despair and it has been sought to prove the efficacy of this militia, at the present stage of our industrial growth, by citing the example of the Russians in their immediate post-revolution history and that of the Chinese more recently. And finally, it has been suggested that this proposed militia will give us better national security than our present regular army.

As regards the employment of this militia in the field, it is proposed to use "mass tactics" and overwhelm the enemy by sheer weight of numbers.

The object of this article is to discuss the efficacy of a militia army *vis-à-vis* our present politico-military requirements and comment on the tactical employment of this militia in massed manpower against a modern army.

Before we go any further, it will be useful to recapitulate the suggested composition and characteristics of the proposed militia army. Very briefly, it is envisaged as a force of some three million lightly armed men—the heaviest weapons being mortars and Indian-made mountain guns. It is to be entirely a marching force on pack basis with ponies or bullock-carts as load carriers. The militia is to be recruited from peasantry which will bear arms to train, say for a month or so in the year, and then return home to continue with its agricultural economy. It is contended that this

* Lecture on "Manpower and Modern Arms" by Lieut-Colonel D.K. Palit, Vr. C., USI Journal, April 1954.

almost continuous "home leave" will keep alive the nation's interest in its army. The militia is to be trained by a small regular cadre to be retained from the present regular army. The training is to reach such a standard that in the event of an invasion of the country the militia can bog down the enemy and repel the attack. In training, emphasis is to be laid on mass tactics and guerilla warfare.

COST AND CONDITIONS

The Economic Factor

Figures are not available to me but for the purpose of this discussion let us assume a standing army of, say, some three hundred thousand. When the proposed militia is raised, a central regular cadre of one-fifth its strength, or sixty thousand, is to be left intact to train and administer the militia and itself. A large number of this cadre must of necessity be officers and non-commissioned officers. As our militiamen must come for training annually for a month at least—and for obvious reasons a shorter period will not do—we shall have two hundred and fifty thousand militiamen under training at any one time out of our total of three million. The training of a larger number, no matter how many different training centres we may have, seems to present an insuperable administrative difficulty with our limited resources. When embodied, the militiamen will have to be fed, housed and generally "welfared" like the regular cadre men, if not a little better. This will mean three hundred thousand men under arms all the time, or the same strength as we have assumed for the present-day army. In addition, a large body of whole-time labour will be required to maintain the arms, equipment, tentage, and other stores left behind by the militiamen not under training for the time being and away tending their fields or flocks or working on their respective trades in the factories. The saving in money that we shall make by putting our present foreign-acquired equipments like tanks in cotton wool will not even meet the very meagre retaining fee that we shall have to pay to our 'idle' militiamen. Experience shows that in a democracy no one works gratis for the government.

Even a cursory analysis of the above will show that the argument that 'To maintain a militia army need cost nothing more than actual expenditure on arms and ammunition' does not hold water. We certainly get numbers but at the cost of efficiency and it is good to remember that God ceased marching in the company of big battalions long ago.

Foreign Policy and the Strength of the Armed Forces

The strength of a country's armed forces depends on its domestic and foreign military commitments and on what it can afford to pay for this unproductive but necessary insurance in peace time. How the armed forces are to be equipped and what role they are to play in peace and war are again matters which require a government decision because he who pays the piper has the right to call the tune. The internal defence commitment in India is negligible at present and the main role for the armed forces has been laid down as the defence of the country.

It has been suggested that 'even for a defensive role our present armed strength is hopelessly inadequate', and the panacea lies in raising a national militia which by its immense numbers, and used as a strategic weapon—it is not clear how—will give us a better set-up in the event of war than our present defence organisation. What potential enemy or an alliance of enemies the author had in mind when passing this "censure of inadequacy" has not been made clear.

It is not for me to pass an opinion whether our present defence set-up is 'hopelessly inadequate for our present defensive role' or not; it is, nevertheless, a serious statement to make and one which deserves careful examination by the powers that be. It is a disturbing factor if the statement made be correct.

Even if a militia force were a better defensive proposition than a standing army, this is not the opportune time for the change-over. India in a sense stands at the parting of the ways at present and to change the very basis of the country's military organisation at this juncture is a very serious matter. To adopt something new and attractive and perhaps superficially less expensive but of unproven value, would be a most unsound national policy.

Our foreign policy is often referred to as dynamic neutrality and we have goodwill towards all and malice towards none. At the same time it can be said that this is a two-way traffic. A dynamic policy by its very nature must change with the changing circumstances in world affairs, adaptation being the secret of existence. After all, foreign policy is dictated by self-interest and its texture is determined by the given facts of a particular period. While our foreign policy may change overnight, we could not change the basic organisation of our armed forces, especially of the technical arms and services, under many years. We know that the establishments and

equipments of units and formations are long-term policy matters and once fixed cannot and should not be too often changed as such changes often require major modifications in battle-technique and tactics.

Dependence on Foreign Arms

One argument, and perhaps the main one, for reorganising on a militia basis is our dependence on others for our major items of military equipment. But so is our dependence in many other spheres, for example food and consumer goods. As I write this article, a news item published by the UNO states :

' India was the second largest user of United Nations technical assistance during 1953 and if in 1954 her projects are carried out as scheduled, India will be the largest recipient of expert aid and fellowships in 1954. ' *

We must have no complexes about this dependence on others. The inter-dependence of nations is perhaps the most dominant feature of the mid-twentieth century civilisation. There are many states, particularly small European nations, who are prepared to sell us modern arms without attaching any political strings to the deal and judging by the results achieved in our quest for modern foreign arms in the recent past, it cannot be said that we have been utterly unsuccessful. There are no doubt many weaknesses in this arrangement, particularly in war time, but in these days no nation goes to war without allies both overt and covert, and if in peace time you have a small modern army, it is far easier in war to build up a larger one on this firm foundation than to covert one from a militia force.

Our Indigenous Industry

When Ranjit Singh was faced with an invasion of his kingdom by the East India Company whose troops were armed with better and more modern weapons than the Maharaja's army, he did not raise a militia with matchlocks, daggers and steel swords—the indigenous arms of that period—and use his vast manpower as a strategic factor. Instead, he imported skilled men from outside the Punjab, and later when his finances permitted him to do so, he employed European technicians on high salaries to set up and supervise government foundries for making heavy guns, mortars, howitzers, pistols, shells and shots. But the Maharaja took care that his own men picked up the necessary technique connected with the casting, moulding, shaping and drilling of these weapons.

* *The Tribune*, Ambala, 26 June, 1954.

India today is following the same wise policy of the Maharaja except that our projects today cover the building of indigenous aircraft, tanks, vehicles and other modern weapons. A news item* states:

'Mr. C.F. Giese, a director of Daimler-Benz, the biggest builders of motor vehicles in Europe, said that a significant and fruitful phase in the development of the Indian automobile industry had been initiated with the recently concluded agreement, with the Indian Government's sanction, between Tatas and Daimler-Benz for the production of trucks in India. It is stated that the Tatas with Daimler-Benz, will produce 3,000 trucks per year, but the essence of the scheme is explained to be that this production rate could, in keeping with the demand, be considerably raised with a little in costs and equipment'.

I could quote many other instances where our industry has gone in for big production lately. We are out of the era of cottage-scale production and it is estimated that in the next five years we will have reached a state of self-sufficiency in all vital spheres of our national economy. With this evidence in front of us it will be a retrograde step to revert to a militia force, only to find that we want to switch over to a regular army again in the next few years when we will even have to teach the art of vehicle driving anew to our soldiers as our militia is to be a non-mechanised force.

Cost of a Modern Army

Our present moderately well-equipped army is no doubt an expensive instrument and one which perhaps we can ill afford. This takes away a lot of our money which we would prefer to invest in ventures which will give our people the good things of life which they have been too long denied. We want to produce butter instead of guns. There is no denying the force of this argument but the millennium of Universal Peace is not likely to come in our lifetime and this insurance in the shape of an efficient fighting force is vital for our national security. We have to foot this bill and until we can produce our own heavy weapons in abundance, we must go on borrowing or buying them from wherever we can to sustain our war-tested armed forces. An ill-trained and poorly equipped militia, though vast in numbers and no matter how well-led by the hard core, will not give us the national security that we so badly need for our growth to full nationhood. In fact, by adopting this "peasant military economy" we shall increase the chances of a foreign invasion of our country. No country will attack us if it knows that it will be hit twice as hard. A militia cannot hit back as a well-equipped modern army can.

* *The Statesman*, New Delhi, 28 June, 1954.

Having discussed the cost and conditions of a national militia versus a standing army and having discounted, it is hoped, the fallacious argument of having an effective national insurance on the cheap, it is proposed to deal with the tactical and strategical implications of the theory of waging war through numbers under Indian conditions.

EMPLOYMENT OF MANPOWER IN MASS

Man versus Machine

The theory of human mass dominated the military mind till the middle of the First World War when the enormous casualties suffered brought home to the commanders a simple fact, that machine-power had gained a victory over mere man-power. We know that two or three unarmed men can generally always overwhelm a man armed with a stick only, but when the latter has, shall we say, a Bren in his hand and knows how to handle it well and conceal it skilfully, he might even stop a platoon of forty men. The stopping power of modern weapons is very crippling and only that side which enjoys unlimited resources in manpower and is prepared to use them as cannon fodder, can practice war by the sheer weight of numbers.

The Chinese mentality, background and the vast human resources that they possess, encourage the use of mass manpower as a force in peace and war. This is one explanation for the Great Wall of China! Indians could have made a great wall also barring the passage to the plains of Panipat to the invaders from the north-west but did not. Our national genius is against the ruthless use of the individual. The general mass of the people in India is against life being cut short. We must remember that the Indian climate now does not breed a race of Janissaries, Nihangs or fanatical mujahids. A *Jeevandani* is not the same thing as a Kamikaze.

Under these circumstances it would be criminal to send our lightly armed militiamen into battle in mass employing outmoded tactics against an enemy disposing modern arms and heavy equipments like tanks. Our footslogging militia will be as helpless against modern tanks as the Polish cavalry was against German panzers.

Mere Numbers

Our militiamen will come up for a month's training every year and in that short period all that we could hope to do would be to make them fire their weapons and revise their minor battle-drills. It will not be possible

to put them through any form of collective training as it is difficult to visualise any standing formations like brigades and divisions in a militia army in peace time. Chu Teh's was a standing militia army got together to fight. It lived on the country and it was a full-time army. No one went home after a month with the 'colours' to come up again the next year for thirty days, which will be the case with a militia operating in peace time, such as the one proposed for India. Under these conditions our militia would lack the cohesiveness and the *esprit de corps* which a full-time army possesses.

Political and Strategic Weaknesses

It cannot be denied that a militia army of amateur part-time soldiers is inherently less ready for war than a professional army. It will therefore take a much longer time for India on a militia basis to get ready for war and take the field. Wars nowadays are not declared but just begun and it is a safe bet that our militia will reach the field too late. Again, the mobilisation of a vast militia in semi-peace conditions may even precipitate war. This is a political reason against raising a militia army.

Pure numbers do not constitute an effective army and the modern price of independence is constant vigilance. Only a standing army, no matter how small, can guarantee this. History is overwhelmingly in favour of this stand. Let us not be blind to the light of history. A very able soldier of the Second World War assesses the value of a Home Guard army as under:—

"While recognising the enthusiasm and the devotion of the British people, I cannot believe in any special combat value on the part of bodies like the Home Guard, above all with inferior weapons; even if the regulars held their ground they are always cannon fodder, as the parallel in Germany in 1944-45 shows. The volkssturm had a great propaganda effect, yet even though it was better armed than the Home Guard it turned out a fiasco. In view of the sacrifice of life to be expected, the responsibility of sending such units into action is a heavy one."*

Militia and Mobility

Mobility is the king-pin of strategy and tactics. It is a simple fact that the quicker any body of troops can be moved from one point to another, the greater is their strategic effect. The proposed militia is to be an entirely marching force without any mechanical transport. It will therefore lack mobility and consequently surprise—two of the prime requirements of

* Field-Marshal Kesselring in his *Memoirs*, Page 73.

success in battle. Under the conditions mentioned, it is difficult to visualise the principle of 'the employment of mass manpower as a strategic factor.' Tactically, on its flat feet and without the support of any heavy weapons, the central regular cadre can only be a functional and not a tactical or a strategical reserve; the militia will lack mobility compared with its machine-mounted opponent. It has been stated in support of the mobility of a militia army that the Chinese could turn 'the complete hinterland of a chosen battle-field and set it up as an ammunition production area and dismantle it again for a swift move within twenty-four hours'—a state of affairs which sounds a little Utopian.

Arms and the Man

The arming of the proposed militia with light weapons only as suggested will not give it a battle-winning morale. In battle everything else being equal, victory goes to the side with a higher state of morale. And what after all is battle morale? In the final test it is nothing more or less than one's confidence in the superiority of one's weapons compared with the enemy's. A .303 rifle is poor comfort against a giant tank.

Battle-worthiness of a Militia Army

Although much use of the militia is not envisaged in purely offensive operations, our defensive policy has to cater for limited offensives to throw the invaders out of the country. In that event, this militia has been suggested as a sort of steam-roller which will roll back the enemy gradually by its vast numbers carrying everything in its stride. What if the enemy declined to roll and instead "stayed put"? The holding power of modern weapons is something to be seen to be believed.

In an offensive, once the enemy has been unhinged in a standing battle and has started going back, success largely depends on how quickly he is followed up. A retiring enemy leaves a large number of obstacles in his wake. Mines have to be cleared and bridges repaired. Now, should an enemy lodge himself in the plains of northern India, rivers and canals are likely to play a major part in the battles there. Assuming that our militia has routed the enemy in a set-piece battle, will it be able to mount river crossing operations and follow up the enemy to our borders?

To go to war without modern weapons is unthinkable and whosoever attacks India will do so using the tank and the self-propelled gun, the heavy machine-gun and the aeroplane. How will our half-trained peasant militia fight such an enemy? We may certainly use its vast numbers to hold large

areas of ground but the defence will lack depth and strength without modern weapons. The enemy is bound to use highly mobile and trained forces for deep thrusts to dislocate our country's life. It is difficult to see how our militia will thwart such tactics as it will be lightly armed and will have no mechanical transport. It will therefore be seen that the fighting value of a militia army is negligible.

It has also been suggested that our militiamen should receive training in guerilla warfare. Apart from the fact that it is not possible to conduct guerilla warfare in the open plains of India, it is a most dangerous doctrine to teach our simple men. Talking of this type of warfare, Field-Marshal Kesselring who experienced this at first hand in Italy in 1944-45, says :

"My reading of history and first-hand acquaintance with guerilla warfare have led me to the conclusion that it is a degenerate form of war. The methods to which it resorts are so incalculable that, sooner or later, they must come into collision with the written and unwritten rules of international law, involving both sides in committing the most abominable crimes with almost methodical predictability."*

National Characteristics and Tactics

An army reflects the national characteristics of a people, and a country's geography and history among many other factors too numerous to be mentioned here determine its strategy and to a large extent its tactics. What may be sauce for the Chinese goose in the hilly terrain of Korea may be poison to the Indian gander on the Gangetic plains of northern India. Reading of the war in Korea one finds that whenever the American soldier went to ground he put up a network of mines around his defensive positions and at unit level this minefield was many miles in depth. Unlike a democratic soldier who carries out a subsidiary operation to clear a minefield before he puts in his attack, the Chinese 'volunteer' went straight through on to the objective without bothering about the mines. In the process of course he suffered innumerable casualties, quite out of proportion to the tactical results achieved. Will the Indian militiaman with his national background being what it is accept this Chinese method? In passing, I may remark that the Russian Militia never fought a major war. By the time 1941 came the Soviets had a Red Army equipped with modern machines and backed by a competent and growing industry.

* *Memoirs*, Kesselring, Page 228.

History's Verdict

History records the use of mere numbers against modern weapons including gas in the Abyssinian War. The Negus had a militia army of considerable strength and it was intensely loyal to him. The whole population almost to a man carried one indigenous weapon or the other. We know the result. The numbers did not avail against machines and native chivalry was no match against modern cunning and ruse which can come only as the result of long and hard training. A militia is not capable of such training. The Chinese and Koreans in their legions did achieve great success against their better armed and equipped UNO opponents but they could not sustain their offensive for very long and the cost paid in blood was too high. In any case, the Korean War is too near us and politically too complicated to be drawn on usefully for a major lesson. Also one has to have a profound mind to deduce major strategical and tactical lessons from history in the making.

CONCLUSION

To sum up, it is considered that it will be very unwise at this juncture of our history to change our proven military instrument for a peasant militia force of doubtful utility. History proves that national insurance cannot be had on the cheap. If war comes to India, the very life of our nation will be at stake and it is time we faced the facts of our history and geography honestly.

In the past, a military decision on the plains of northern India has often decided the destiny of our people. In spite of the aeroplane, the railway and the modern road, our geography is what it was say in 1526, a significant date in our history. Once we lose the north of India, we shall not be able to carry on the war from a Yunnan or a Chungking. For one thing, Indian conditions do not lend themselves to such fighting and secondly, who will send us the manna over the Hump !

- If we want to survive we must move with the world current. Like the legendary ostrich, it will be dangerous for us to bury our head in the sand and ensure our national safety by shutting the danger out of sight. I do not mean to suggest that the world takes notice of India because we are militarily strong. We know we are not and it will be a long long time before we come to possess the ultimate in war, *i.e.* the hydrogen bomb in a cobalt casing, if there ever can be the ultimate. But I will say this, that India with a militia army only will just be a back number.

In conclusion, I am fully convinced that our present small professional army, if it can be a little streamlined in its administration and overheads, a little more generously paid, properly trained and armed with whatever modern equipment we can 'buy, beg or borrow' or make ourselves to sustain it, and backed by a well-organised territorial army, will give us better national security than a half-trained peasant militia of half a dozen million amateur soldiers.

INTERIOR BALLISTICS OF A SERVICE RIFLE

Lieut. Colonel C.L. Barve

THE aim of this article is to describe what happens in a loaded service rifle from the moment of pulling its trigger to the time of hearing the fired shot. The period taken for this occurrence is extremely short indeed, and is all over in less than one-hundredth part of a second. Within this split second, a series of events take place one after the other with an amazing rapidity which is almost unbelievable. The precision with which they occur determines, amongst other things, the accuracy or otherwise of shooting and form the very basis of design of the weapon and its ammunition. The various inspection procedures adopted by armourers and inspectors are a means of ensuring that the sequence of events, as predicted, would in fact take place correctly on firing the rifle.

RAPIDITY OF EVENTS

The following events occur in rapid succession on pulling the trigger:—

- (a) The striker flies forward and hits the cap of the cartridge.
- (b) The cap detonates and in turn explodes the propellant charge converting it into a white-hot mass of gas. These gases develop a pressure of some 20 tons per square inch inside the barrel almost instantaneously and give a violent 'punch' to the bullet.
- (c) The bullet moves forward in the barrel and attains a velocity of 2,440 feet per second and a spin of 2,950 revolutions per second by the time it reaches the muzzle end.
- (d) The rifle violently recoils and vibrates. In case the firer has held the rifle loosely, it bruises his shoulder and makes him wiser.

All these events occur within a hundredth part of a second. In order to get a correct mental picture, it would be necessary to space out

these events by subdividing this crowded instant into further tiny bits. For this purpose, a ten-thousandth part of one second will be adopted as the unit of time in which to describe the various occurrences. Thus, ten thousand of such tiny units of time will be equal to one second. For the sake of convenience, the abbreviation TTS (ten-thousandth part of a second) will be used in this article.

As stated earlier, it takes less than one-hundredth of a second for a bullet to leave the rifle after firing, or in terms of our new unit, less than 100 TTS. This time is conveniently divided into four periods in which the sequence of events is described.

- (a) Striker Period:—Period during which the striker flies forward and hits the cap. This period is approximately 58 TTS.
- (b) Ignition Period:—Cap detonates and in turn explodes the cordite charge in the cartridge so as to set the bullet in motion. Time taken is estimated to be 2 TTS.
- (c) Barrel Period:—The bullet moves forward under tremendous pressure developed behind it and travels the two feet length of the barrel up to the muzzle. Time taken is approximately 12 TTS.
- (d) Recoil and Report Period:—This constitutes the time taken by the sound of the released gases at muzzle to travel to the ear of the firer, viz, 22 TTS. The recoil resulting from the violent rushing out of the bullet and gases occurs during this period.

I shall now try and describe the sequence of events occurring within the four periods mentioned above.

Striker Period

In order to grasp clearly what exactly happens when the cartridge cap is hit, it is necessary to study the internal construction of a rifle cartridge. This is illustrated in the diagram given below (figure 1) :—

A is the cap which is formed in the shape of a cup and is filled with a very small quantity (half a grain) of a detonating composition. The cap so filled is then pressed into the cartridge case B in the recess made for this purpose at its base. This recess is called the cap chamber. In front of the cap will be seen a lump of metal C which is a part of the base

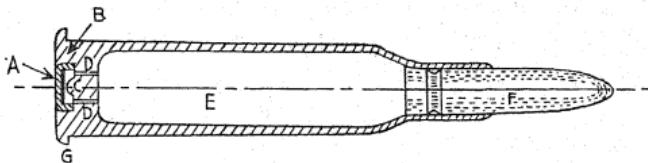


FIG. 1 (NOT TO SCALE)

DIAGRAM OF A RIFLE CARTRIDGE (MARK VII-BALL)

<u>A - CAP</u>	<u>E - CHARGE CHAMBER</u>
<u>B - CARTRIDGE CASE</u>	<u>F - BULLET</u>
<u>C - ANVIL</u>	<u>G - RIM</u>
<u>D - FLASH HOLES</u>	

of the cartridge and is called the anvil. D are the flash holes connecting the cap chamber to the inside of the case, i. e. portion E, which is called the charge chamber. The propellant charge (cordite) is placed in this chamber. As will be seen from the diagram the cartridge case is tapered progressively to the front for ease of extraction. It is bottle-necked at the mouth where it holds the bullet F.

On pressing the trigger the striker is released forward and hits the cap in the centre. The striker moves forward under the force of its spring and travels a distance of approximately four-fifth of an inch before it hits the cap. The striker has to be so made that the blow it gives to the cap is hard enough to dent the cap and crush the composition against the anvil so quickly that the resulting friction is enough to detonate the cap composition. The cap must be soft enough to be dented under the blow of the striker. A harder cap may result in sluggish burning or the charge may not burn at all. Alternatively, if the blow is very hard it may pierce the cap. In that case, the gases may escape rearwards through the pierced cap. This is dangerous to the firer apart from the inaccuracy in shooting. Too weak a blow delays the explosion of the charge and causes what is popularly called a "hang fire." This delay ultimately affects the muzzle

velocity of the bullet and gives rise to inaccuracy of shooting. A loss in muzzle velocity of as much as 100 feet per second from the normal (2,440 feet per second) is possible as a result of delayed explosion.

This shows how important it is that armourers must see to it that the striker end has the correct shape, and that the striker spring is of the correct strength.

Ignition Period

When the cap is struck, the cap contents at once turn into hot gases which travel up into the charge chamber and ignite the cordite placed in the chamber. The cordite in turn begins to burn rapidly and develop pressure. Within 2 TTS it builds up sufficient pressure to eject the bullet out of the mouth of the cartridge case. The bullet is now free to travel forward.

All the charge has not yet been burnt completely. The process is continued for a little more time and a sustained pressure is maintained behind the bullet in order to force it through the rifled bore. This pressure not only acts on the base of the bullet but is equally effective on the cartridge case as well. Thus, if the cartridge case has developed even a tiny crack, the pressure will leak out of it. If the cap is pierced by the striker or is badly fitted in the cartridge base, the gases may likewise leak backwards and cause a loss of pressure.

It will be observed that the cap composition is first ignited by the striker blow, which in turn ignites the main cordite charge. The existence of a cap with a sensitive composition is an indispensable feature in the design of a small arm round. The main charge (cordite) cannot by itself be ignited by a striker blow and needs a more powerful agent to initiate action, which is provided by the burning of the cap composition.

Barrel Period

“Set up” of the bullet

This is the most important period in the life of the round under fire. When the bullet leaves the cartridge case, its base expands until it makes a firm contact with the barrel wall, and prevents any gas escape forward. This phenomenon is known as the “Set up” of the bullet. This is a peculiar characteristic of the small arms ball ammunition and is indispensable to accurate shooting.

To understand clearly the causes and the effects of the "Set up" it is worth while studying the make up of a normal .303 inch ball bullet. Figure 2 shows the various parts of such a bullet.

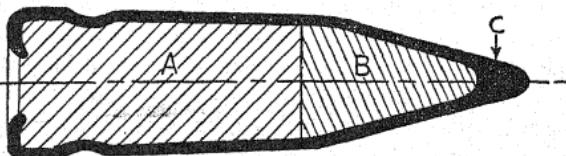


FIG. 2 (NOT TO SCALE)

THE MAKE UP OF A BULLET (MARK VII=BALL)

A - LEAD CORE

B - ALUMINIUM TIP

C - CUPRO-NICKEL ENVELOPE

A is the lead plug in front of which is an aluminium tip B. Pieces A and B are held together in a cupro-nickel envelope C. The complete bullet as described above is held in the neck of the cartridge case. The complete assembly, viz., the cartridge case and the bullet is called the 'round'. On firing, only the bullet portion of the round leaves the rifle while the empty cartridge remains behind in the chamber and is extracted on opening the bolt.

When the propellant in the cartridge chamber is ignited it builds up pressure behind the base of the bullet. The pressure developed is so high and so quick that it acts as a violent punch on the base of the bullet. As a result, the lead in the cupro-nickel envelope flows outwards, until it makes a firm contact with the barrel chamber. The bullet base expands to some .350 inch diameter instead of .310 inch as made. This 'Set up' or expansion of the base of the bullet causes an effective seal for the high pressure gas in the chamber. This ensures that a sustained pressure

is fully exerted on the base of the bullet. The importance of the set up for accurate firing will be realised from the fact that its action is equally effective in all rifles at their varying stages of wear within permissible limits. This incidentally allows a good margin for permissible wear of the bore before the rifle barrel is condemned. If, however, the bullet fails to set up or sets up insufficiently it permits a passage of high pressure gas over and round the bullet. This has the effect of pressing the bullet all round and squeezing it out lengthwise. Such a deformation of the bullet is called 'Wiredrawing'. In an extreme case, the bullet passes down the bore as if swimming in a bath of high pressure gas without touching the walls of the barrel, acquiring no spin and loosing all accuracy.

Lead of Rifle

The set up of the bullet as described above takes place while the bullet travels through the 'lead' of the rifle. The lead is that portion of the barrel which connects the front end of the chamber to the portion of bore where the rifling commences. In a new rifle the lead is about one quarter inch and this goes on increasing with progressive use of the weapon. In a rifle which has fired some 5,000 rounds the lead may be as high as one inch.

At the end of the travel through the lead the bullet is offered further resistance as it comes up against the rifled portion of the bore. This resistance is greater in an unworn barrel having a shorter lead. In such a rifle the space available for the expansion of gases in the lead portion is smaller and this causes a further and quicker build up of high pressures within the chamber. In a worn rifle, however, having longer lead, the bullet allows more space for the expansion of the gases which fact affects the rate of burning and the rate of development of pressure. Thus, the maximum pressure developed inside the barrel and its spacing is altered which in turn affects the muzzle velocity. The length of the lead therefore forms an important point of inspection by an inspector before the rifle is condemned. He measures this indirectly by means of a lead gauge and rejects the rifle for service use if the lead is beyond permissible limits.

Pressure Development

The pressure development curve is shown in the accompanying graph (Fig. 3). On firing, the inside pressure in the barrel rises to the peak figure of nearly twenty tons per square inch in a matter of two TTS which is equivalent to pressure increase at the rate of a hundred thousand tons

per second. The effect of this pressure rise inside the barrel is very similar to an intensely sharp and heavy blow. The whole barrel shudders from the impact and is thrown into severe vibrations. The cartridge case is violently expanded against the walls of the chamber and is thrust backwards against the face of the bolt which in turn is thrust against the resistance shoulders on the body of the rifle. The expansion of the case is so rapid and so strong that the case and barrel behave as one solid provided the chamber is clean and free of oil. Any trace of grease or oil in the chamber will, however, permit the case to slide slightly to the rear through the chamber instead of pressing tightly against the chamber walls. As a result, the back thrust on the bolt is very materially increased with consequent damage to the bolt and extra wear on resistance shoulders on the body. This is why there should be no grease or oil in the chamber at the time of firing.

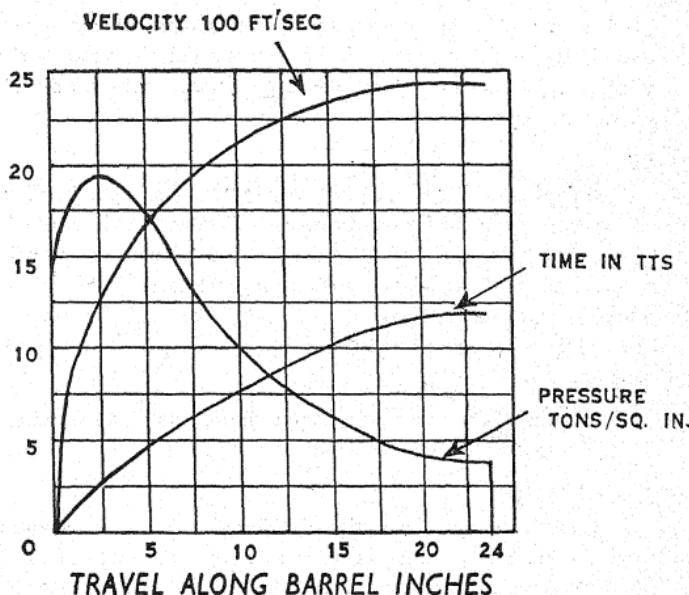


FIG. 3

PRESSURE AND VELOCITY IN A RIFLE BARREL

Likewise, even the slightest restriction in the barrel in the path of the bullet in the form of dust, dirt, piece of flannelette etc., would prove disastrous. The pressure would develop enormously and burst the barrel under such conditions. This is why it is imperative that the barrel is kept absolutely clean before firing.

Velocity of Bullet

The velocity curve of the bullet is shown in Fig. 3 along with the pressure curve and the barrel time curve. It will be seen that the velocity goes on increasing throughout the barrel length. Rate of increase of velocity is highest in the region of maximum pressure as would be seen from the steepness of the curve within the first five inches of travel. The nominal muzzle velocity of a service Mk VII cartridge is 2,440 feet per second with a tolerance of 40 feet per second either way. Nearly two-thirds of the muzzle velocity is reached within the first five inches of the bullet travel in a matter of 5 TTS. The total barrel period is 12 TTS.

As a matter of interest, the bullet velocity decreases very rapidly once it leaves the muzzle. Within one second the velocity drops down to some 1,350 feet per second, the range attained within this second being six hundred yards.

Spin

Spinning a projectile gives it greater steadiness in flight. Spiral grooves are cut in the inside of a rifle barrel, one turn in ten inches length. These grooves impart a spinning motion to the bullet as it travels up in the bore. The bullet acquires a spin of approximately 2,950 revolutions per second by the time it leaves the muzzle. The rate of diminution of spin on leaving the muzzle is not known but is perhaps five to ten per cent per second.

The spin is very essential for attaining long range with accuracy which results in steadiness in flight.

Length of Barrel

Considerations of velocity development mainly account for the specification of a barrel as regards its length. Velocity cannot be acquired unless a sustained pressure is built up and allowed to act behind the bullet for a certain time. This time is determined by the length of the barrel. Once the bullet leaves the muzzle there is no provision to create pressure behind the bullet for propelling it forward. Other things being equal, the longer the barrel, the higher will be the muzzle velocity within

limits. Considerations such as weight and ease of handling, however, make it desirable that barrels be kept as short as possible. Barrel length is essentially a compromise between the requirements of high muzzle velocity and low weight of the weapon.

Vibrations and Jump

The sudden and violent rise of pressure within the barrel on firing sets up violent vibrations. The muzzle end vibrates with the result that the bullet instead of leaving the muzzle along the original axis of the rifle leaves at an angle to it. This is illustrated in the following diagram (Fig. 4) :—

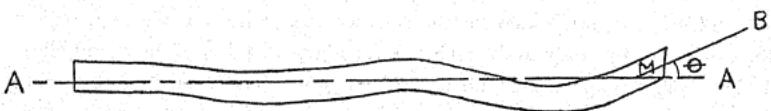


FIG. 4 (NOT TO SCALE)

BARREL VIBRATION AND JUMP

AA - AXIS OF BORE

M - MUZZLE

θ - JUMP

AA is the axis of the rifle before firing. As a result of vibrations the bullet may leave along the line MB instead of along AA. The angle between MA and MB may be as much as 10 minutes which is enough to throw the bullet out by 10 inches at a hundred yards range.

Resting Rifle

Fortunately, with a given rifle and ammunition the direction and magnitude of this angle is practically constant and would cause a consistent error which could be taken care of in the sighting of the rifle. The angle AMB in the above illustration is known as the jump and may be positive

(i.e., upwards) or negative (i.e., downwards) depending on whether the muzzle region of the barrel happens to be whipping upwards or downwards at the instant when the bullet leaves the muzzle. If however the barrel is not free in the stock or is rested on some rigid support, changes in the vibration will take place with a consequent alteration in the "jump." This will no doubt alter accuracy, and is why armourers test the rifle to see that the barrel is free in the stock. For the same reason one is warned in rifle shooting to see that the rifle is not resting on a rigid support. If a support is available, the left wrist only may be on it as this will not materially affect the barrel vibration.

Recoil and Report Period

This is the time taken for the released gas at the muzzle to travel to the firer's ear and is about 22 TTS. A very large portion of the recoil effect of the firing is experienced during this period. The report of the firing occurs at the same time as recoil and both affect the marksmanship of an untrained firer, who has not taught himself to disregard them. The beginner as a rule dreads recoil and report. In order to get over them as soon as possible, he jerks the trigger and often shuts his eyes. Once he develops the habit of jerk and flinch, it becomes one of the most serious handicaps to be overcome in teaching marksmanship. It is therefore a very sound policy to start a recruit on a .22 calibre long rifle which does not have any appreciable recoil. When he masters the technique of good marksmanship with the .22 rifle, he should proceed to shoot with the service rifle of the heavier recoil and should normally do a good job of it.

The heavier the arm the smaller is the energy of recoil. By holding the rifle firmly against his shoulder the firer effectively adds a part of his weight to the weight of the rifle, so that both the energy and velocity of recoil are reduced. If he does not hold it firmly, bitter experience in the form of a bruised shoulder soon teaches him otherwise.

CONCLUSION

It takes less than one-hundredth of a second for a bullet to leave the rifle after the trigger is pulled. During this period the rifle is subjected to sudden pressures and vibrations. The bullet attains a speed of 2,440 feet per second and a spin of 2,950 revolutions per second. This is attained only when the various rifle components are of correct strength and within permissible wear limits, which the armourers periodically check with the help of gauges and tools.

Oil or grease in the chamber at the time of firing shortens the life of the weapon. Resting the rifle on a rigid support may cause inaccuracies in shooting.

Recruits dread recoil and report of fire. As such it is a sound policy to initiate them into the art of firing by stages beginning with a .22 rifle which has a negligible recoil.

C'EST CA

'ZUT ALORS'

IHAVE often been struck by certain affinities between the Indian army and the French army.

Everyone, of course, knows that the word 'Paltan' used over the last two hundred years to denote an Indian battalion, is derived from the French word *peloton*, or, as we now call it, platoon.

The word used for a cartridge is similarly 'Kartus'—just the French word *cartouche*—handed down by great-great-grandfather, who fought in some of the many battalions trained by *Feringhis* and working to commands uttered in French.

The original button-design of the Honourable East India Company's soldiers was, as we shall have learnt if we read the Journal of the U.S.I., copied direct from the old French *foliole* motif and, up till Partition, could still be seen on buttons of warrant officers, conductors etc., I.U.L. and clerks.

* * * * *

Bien !

It is a curious fact that when the first Indian 'Light Infantry' battalions were formed they were distinguished by having pointed cuffs to their red coats and, since that day, the various Indian companies and corps of 'Rifles' have, for the greater part, worn pointed cuffs.

Now this peculiarity is not British, for their Rifles have worn 'slashed' cuffs and their Light Infantry regiments have always had the same cuffs as other 'Line' regiments, but it has invariably been the privilege of French Chasseurs and Infanterie Legere.

We suggest there is a connection.

Quoi ?

The head-dress of the sepoy, until replaced by a pagri, also closely approximated to the bell-top shako which we associate with the Emperor Napoleon's troops; but here we must call a pause. Neither Napoleon's

army, nor the British nor that of any other European power commenced to wear the shako before 1,800, whereas the H.E.I.C. sepoys had been drilling and fighting in them for fifty years.

The resemblance must be coincidental—unless of course we approve the fantasy that the imitation was in reverse, *i.e.*, Napoleon borrowed hat-fashions for his Grande Armee from John Company Bahadur's sepoy log!

Incroyable !!

Then we have our old puzzle 'Half Mounting'—that curious allowance that, till the First World War, was paid to every recruit on joining in order to enable him to buy the clothing and necessaries, which a parsimonious army refused to stock and issue, and was thereafter drawn annually to defray its upkeep.

This custom originated in the old French army, where a capitation grant was paid annually to the commandant of a regiment, who then became responsible for clothing his men. It was known as *Maintien* (maintenance).

The H.E.I.C. adopted the same convenient system, but in this case, as the C.O. had only to provide the men's woollen jackets and trousers, he drew only half the 'maintien,' and the sepoy, who had to buy his great-coat, cotton clothing, haversac, water-bottle, shoes, cooking-utensils etc., was paid the other 'Half Maintien'—soon corrupted into 'Half Mounting'.

Parbleu !!!

STRINGER LAWRENCE

BRIGADIER H. BULLOCK, C.I.E., O.B.E., F.R.HIST.S.

XII. POSTERITY'S VERDICT

PUBLIC and private commemoration of the dead General was not stinted. The East India Company voted £700 for a memorial, and the *Annual Register* for 1777 announced its completion and described design and symbolism. 'A handsome monument was this day (22nd March, 1777) opened in the north aisle of Westminster Abbey, on the base of which are the following lines: "Erected by the East-India Company to the memory of Major-General Stringer Lawrence in testimony of their gratitude for his eminent services in the command of their forces on the coast of Coromandel from the year MDCCXLVI to the year MDCCCLXVI." The design seems partly explained by the epitaph; it is a figure with proper attributes, representing the East-India Company pointing to a bust of the General, and directing Fame to record those actions which have induced her to honour his memory in the public manner; Fame, receiving her commands, has engraved the following words on a shield: "Discipline established, Fortresses protected, Settlements extended, and Peace concluded in the Carnatic." In the centre is a view of Tritchinopoly, in Basso Relievo, the principal seat of war at that period; and at the feet of the Company, trophies and standards of the French, Moraotes and Mysorians. The epitaph is wrote by Mr. Orme, and the sculpture executed by Mr. Tyler.'

Immediately beneath the bust is a small shield setting out the dates of Lawrence's birth and death as 6th March, 1697, and 10th January, 1775—whereas he was born on 24th February, 1697/8, Old Style, or 6th March, 1698, New Style. The date, 1746, given for the commencement of his Indian command is that of his appointment in London: he did not sail till 1747, and took over command on arrival at Fort St. David in 1748. The *Annual Register*'s description omits one line in the first inscription, which has been replaced in the version given above. Finally, Lawrence's armorial bearings—*ermine, a cross raguly gules*—are displayed on the plinth of the bust.

The tributes of private affection were even more splendid. Dunchideock church already contained the grave and monument of a local man, Aaron Baker (1610-1683), an eminent servant of the Company who became the first Governor of Madras, heading a long list in which Palk's name also figured. Not far away, on the north wall of the north aisle, Lawrence's funeral monument was now erected. A portrait medallion in marble, also by W. Tyler, shows the General's head in profile. Below is a long inscription from the pen of Hannah More: "Major-General Stringer Lawerence, who commanded in India from 1747 to 1767, died January 10th, 1775, aged 78 years. The desperate state of affairs in India, becoming prosperous by a series of victories, endeared him to his country. History has recorded his fame, the regrets of the worthy bear testimony to his virtues.

*Cui Pudor et Justitiae soror
Incorrupta Fides nudaque Veritas
Quando ullum invenient parem?**

Born to command, to conquer and to spare—
As mercy mild, yet terrible in war ;
Here Lawrence rests, the trump of honest fame
From Thames to Ganges has proclaimed his name.
In vain this frail memorial friendship rears,
His dearest monument an army's tears ;
His deeds on fairer columns stand engraved
In provinces preserved and cities saved."

Lawrence's arms, differing slightly in detail from those at Westminster, are depicted here also, and are surmounted by a laurel wreath as crest. Once again, a mistake appears in the wording: his age at death was 77, not 78.

This was the more orthodox of Palk's memorials. To it he added a lofty tower on Haldon Hill, eight hundred feet up on the moor overlooking Torbay. Triangular in plan with rounded, turret-like corners, it goes by the name of Haldon Belvedere or Lawrence Castle. On the ground floor stands a life-sized statue of the General in Roman garb, with a Persian inscription sent by the Nawab of the Carnatic, Muhammad Ali. Tablets on the surrounding walls bear lengthy tributes, in whose composition it is safe to recognise the hand of Orme:—

- I. To the memory of Major General Stringer Lawrence, who, for the space of twenty years, commanded the British armies in India, and by his superior genius, consummate skill and

* "When will Modesty and unblemished Loyalty, the sister of Justice, and naked Truth, find an equal to him?" (Horace, Odes, book 1, ode 24, line 5).

unremitted exertion, with an inferior force extinguished the power of France, restored the glory of the British name, and by replacing in the Government Mahomed Aly Cawn Behauder the distinguished son of Anuerdi, in happier times the rightful sovereign of the Carnatic, established the Empire of Britain in Hindostan. Nor were his talents in war more eminent than his milder virtues ; he aspired to and attained a name more glorious than that of conqueror ; he was the deliverer of India, at his approach every village poured forth its inhabitants, every eye was rivetted with intention on his person ; and he seemed, while blessings in different languages and from every side were showered on him, to have blended in one family (of which he was the common father) the natives of Europe and the inhabitants of Asia.

- II. The Princes of India revered him as a superior being, and to the end of his life their testimonies of affection were unceasing. The following inscription (from the original Persian), sent after his death, perpetuates the gratitude of the Nabob of Arcot—"To the memory of the late Major General Stringer Lawrence, His Highness the Nabob Wallajah, Amir-al-Hind, Sipah Salar, Prince of the Carnatic and the ally of His Britannic Majesty, caused this inscription to be placed in testimony of his friendship, of the high sense he entertained of the services rendered by the General to himself, and to his friends the English in India, as he was the first founder of the English power in Hindostan." The opinion of the East India Company of his merits and services is best expressed in the monument they caused to be erected in the Abbey Church of Westminster (*proceeds to quote the inscription on the memorial in the Abbey*).
- III. This excellent man was born at Hereford in the year 1697. His early days were devoted to that service of which in the following years he was so bright an ornament. He served against the rebels in 1745 as Aide de Camp to Lord Tyrawly, and at Gibralter he was long the much loved patron of General Wolfe. At the solicitation of the East India Company he accepted the command of their forces in India ; and after having saved and extended the provinces, he closed his long career of military glory by the successful defence of Madras, the capital of the British possessions, in 1759. He died, full of years, fuller of honour, in 1775, and his remains are deposited within sight of this tower in the parish church of Dunchideock. This column was erected by Sir Robert Palk, Baronet, sometime Governor of Madras, an eye witness of the triumph in war and of the virtues in peace of his illustrious friend.
- IV. It was General Lawrence who first brought the British arms to conquer in India. He laid the foundation of our greatness

here. His integrity, his modest manner of writing, his singular diffidence in speaking of himself, are faithfully recorded in the breasts of all who are acquainted with the public transactions of this country.

* * * *

To analyse and appreciate Stringer Lawrence's personality is no easy task, since the historical evidence upon which a judgment must be based is so unevenly distributed. For two-thirds of his life we possess scarcely any material to provide human touches and illuminate the sources of his later talent. No one who knew him during his first half century has left record of his impressions, no letter Lawrence wrote before his fiftieth year has come to light. Of formative influences, the family circle in which he was brought up, the school at which he was educated, we know nothing. His service as a page in the suite of a roving ambassador and his long spell as a subaltern in the isolation of Gibraltar are established facts and indeed cover substantial periods ; but we know them only in bare outline, so that they justify little inference as to their effect on his subsequent career. Until he was past middle age we do not even know whether he was rich or poor, happy or miserable, popular or lonely. But as he arrives in India the light of history suddenly shines brightly. He appears on the eastern scene as an officer of recognised experience, quickly displaying a power of rising to emergency, though whether he owed his faculty to breeding or acquired it by training, self-discipline, or environment remains obscure.

First, his outward appearance. His portraits, from the master brushes of Reynolds and Gainsborough, differ little in essentials. A close-up reveals a broad full face with well-arched eyebrows, short blunt nose, and sensitive mouth. Moving back, we see a portly but erect and dignified figure of middle height, firmly balanced on feet set well apart, the head bent slightly forward. Alert, and with the hint of a gleam in his eye to mitigate professional sternness, the General holds a long tasselled cane in his right hand while his left palm rests on the hilt of his sword. The overall effect is of authority and confidence, ready and able to face any challenge. Such, in maturity, was Lawrence's physical aspect.

Before discussing his worth as a soldier, we may briefly consider his capacity for public business in general. He sat for many years in Council at Fort St. David and Fort St. George, latterly often acting as President. The minutes show that when in health his attendance was regular and that

his colleagues held his advice in high regard. No claim can be made that he evinced special ability in dealing with non-military problems, though his excursions into the intricate diplomatic sphere were notably successful. One would like to discern Peterborough's preceptorship here, but the results may have owed more to the subtlety of his usual collaborator, Robert Palk.

It is as a soldier that Lawrence stands to be judged by posterity. The opinion of an eminent authority, the late Professor H.H. Dodwell, is that he was a man of the greatest gallantry, "one of those cool-headed, clear-sighted tacticians whose skill has been displayed on countless battle-fields, and whose exploits constitute well-nigh the whole of our military history." This appreciation is undoubtedly well-founded. Even Lawrence's own unvarnished narrative of his marches and fights repeatedly shows his swift and brilliant improvisations in moments of peril, and their unfailing success. Over and over again he finds himself on the brink of disaster, yet in a flash sees the way out and adroitly turns a critical situation to advantage and final victory. Where other column commanders would walk into a trap or, wavering between two alternatives, adopt the more calamitous, Lawrence without hesitation took the correct action. His tactical flair held nothing short of genius, and to its success his own bravery under fire must have contributed much.

Dodwell fails to mention another way in which Lawrence excelled professionally, namely his aptitude for administration. As a veteran who had seen both staff and regimental service in the field he was no stranger to problems of space and time, the movement and distribution of man-power and munitions and supplies. To this experience he added the gift of foresight. Contemporary records continually reveal him looking weeks, even many months, ahead and wringing reluctant consent from a council of commercial colleagues for the timely but expensive procurement of reinforcements and stores, often from great distances and by devious routes. He was a master of logistics.

Having thus expressed a high opinion of Lawrence as a military leader, it would be lacking in candour not to mention a criticism made by one who knew him well, for though it does not detract from his reputation as tactician and administrator, if it is true it must have discounted his worth as commander-in-chief. In 1775 Robert Orme, friend and fellow-councillor and historian of Lawrence's campaigns, wrote a private letter which from internal evidence relates to about the years 1753-55. In effect, what Orme said is this.

Lawrence, though to be sure he has plenty to be proud of, is vain about his victories. A poor judge of character, he is surrounded by a coterie of favourites, headed by Palk, who play up to his weakness by recalling and praising his battles in order to assure their positions and improve their prospects. The more they flatter him, the better he thinks of them. With ulterior motives they advance projects which they easily persuade him to adopt, in blind honesty, as his own ideas; and he impetuously carries them into effect. He lives in a fool's paradise, believing that his own will is supreme and failing to realise that he has been imposed upon by designing sycophants. Unimpeachable in his own integrity, he believes that his associates are the same, whereas their principal object is personal gain.

It is not an attractive picture. Is it a faithful one? It must contain some truth, for Orme was a scrupulous historian who had no motive for attacking his old friend. But even if the essential veracity of his criticism be accepted, Lawrence's military character, it must be repeated, is not called into dispute. Most significant, perhaps, is its tribute to the General's integrity. In an age when the pagoda-tree was beginning to be vigorously shaken, all authorities agree that Lawrence stood aloof from venality. In 1767 Orme wrote to Colonel Richard Smith, commander-in-chief in Bengal, warning him that "Parliament in less than two years will ring with declamation against the plunderers of the East", adding that "Old Lawrence has a reputation in England which may well be envy'd (with all its fortunes) by the name of Clive." The memorandum prepared about 1764 for William Pitt bore similar testimony: "the very small sum he acquired when many of his officers enriched themselves is a proof of his disinterestedness... his actions were always upright and... he always preferred what he judged to be the interest of the public to every other consideration."

It is relevant to summarise what is known about his finances. In the normal course, his pay and allowances were increased as his responsibilities grew. When he returned to England in 1760 the Company granted him an annuity of £500, which was suspended on his return to India a year later and revived on his final retirement in 1766. This was augmented by a private stipend of £500 a year from Clive. It looks odd to modern eyes, but Clive could well afford it and it would hardly have been offered or accepted had Lawrence not stood in need of it. From 1766, on leaving India for good, he also had an annual allowance of £1,500 (3,750 pagodas, at about 8s. to the pagoda) from the Nawab of the Carnatic. His

expectation of life was small, and neither Clive nor the Nawab could have anticipated that his bounty would run for long.

What capital he possessed is uncertain. Dodwell in stating that he saved £10,000 in ten years seems to have misread a passage in one of Orme's letters which refers not to Lawrence but to Palk, who certainly amassed a fortune by means which would today be regarded as dubious but were all too common in the eighteenth century. Nor does the General's will afford any positive clue. He left an annuity of £800 to his nephew John Twine and Elizabeth his wife, and to the survivor of them. John was dead by 1783, and Elizabeth by 1786: both were probably elderly at the date of the legacy, and it does not necessarily indicate that a substantial capital sum was at Lawrence's disposal to cover the annuity. Further annuities of £25 each to his butler and servant and a bequest of a recently-acquired property at Southampton to Robert Palk were the only other financial clauses of the will: neither they nor the simple nature of the will itself suggest affluence on the part of the testator. The diamond-studded sword, gift of a grateful Company, was bequeathed to his godson and namesake, Sir Robert's eldest son Lawrence, whose father was residuary legatee; and ever afterwards the eldest son of the Palk baronets was christened Lawrence to keep the memory of friendship green.

It was not long before the mists of legend began to gather round Lawrence's name. A generation after his death Farington, the diarist and Royal Academician, heard tales at Torquay of General Lawrence who made a fortune in the East and left it all to Palk. In the year (1954) this is written a pilgrim to "Lawrence Castle" was assured that many who go there claim to be Stringer's descendants, and one of them solemnly averred that the Palk-Lawrence friendship had its origin in Lawrence saving Palk's life.

* * * *

This, then is how we see him as we bid him farewell : a stubborn, brave, honourable soldier, whose dignity never lacked the leaven of humanity and whose honesty shone out for all to see, always a staunch ally save to his country's enemies.

REFERENCES AND AUTHORITIES

Stringer Lawrence's will is at Somerset House, Prerogative Court of Canterbury, 19 Alexander, 1775. Elizabeth Twine's will is at P.C.C., 310 Norfolk, 1786; and administrations of her husband (and first cousin)

John are in the P.C.C. Administration Act Books, 1783 and 1787. The *Farington Diary* mentions the Palks and Lawrence on 27 Sept., 1809. See also *Report on the Palk MSS.*, Historical Manuscripts Commission, 1922, pp. iv, 13, 240 and *passim*; Orme MSS., 222/189, p. 166 (for his letter to Col. Richard Smith). The date of the Company's letter (Palk MSS., p. 13) reviving Lawrence's annuity is misprinted 1776 (for 1766). The Secretary to the Court of Directors, writing on 4 December, 1766, concludes by "most sincerely wishing the Bath may have the desired effect"; and the *Bath Chronicle*, 18 Dec. 1766, shows General Laurence (*sic*) among the "Arrivals". I have visited Dunchideock church, Haldon Belvedere, and the monument in Westminster Abbey.

(Concluded)

THE RETREAT FROM BURMA 1941-42

GENERAL EDITOR

DR. BISHESHWAR PRASAD, D. LITT

Combined Inter Services Historical Section (India & Pakistan), Rs. 20/-

This book is the first of a planned series of the official histories dealing with the participation of the Indian Armed Forces in the Second World War. It describes the military events which terminated in the conquest of Burma by the Japanese in 1941-42.

As an official history the subject has been treated exhaustively, apparently after much research and after viewing both sides of the picture, the Allied and the Japanese. The main sources of information were the war diaries of units participating, a number of appreciations written by high ranking military officers, despatches written by the commanders involved in the operations, translations of interrogations of Japanese prisoners, captured documents, and personal accounts of eye witnesses. The wealth of information has been well sifted and generally well presented.

The story told is a dismal one. The local commanders were left by Whitehall to fight their battles entirely unprepared, with inadequate men, weapons, and materials and a civil administration that was not geared to the needs of war. The Allies were completely surprised by the weight, direction and timings of the Japanese attack. In addition, the Japanese tactics of infiltration presented a problem for which they were wholly unprepared.

The fact that the local commanders were able to save the Army in Burma from complete destruction speaks volumes not only for their ability but also for the fighting spirit of the troops under extremely trying conditions.

The British were primarily concerned with the defence of Singapore and with the limited resources available Burma was neglected.

Strategically the defence of Burma was most difficult. Rangoon

which was the only base was well forward and exposed to enemy attack early in the operations. The defenders were also in the awkward position of having to form fronts parallel to their lines of communications in the first phase of the War. This meant that there was always a danger of their communications being cut.

Once the Japanese crossed the Sittang it became obvious that Rangoon was untenable. When Rangoon was lost the loss of Burma was a foregone conclusion because there was no line of communication from India by which reinforcements could be sent. All that the commanders could do was to carry out a systematic withdrawal delaying the enemy and destroying the local resources, chiefly oil. Meanwhile the road from India to Burma was being rushed to receive the withdrawing troops. The troops had to reach Tamur before the break of the monsoon. The closeness of their race against time can be seen from the fact that on the day of their arrival at Tamur the monsoon burst.

Withdrawals are seldom studied, yet they are operations of war which one side or the other has to carry out. For a study of the withdrawal under disorganised conditions which are normal to a withdrawal, this book offers the best scope. The maps are good and the young officer will find plenty of material for studying minor tactics which pertain more to his duties than the study of the strategic conduct of campaigns. The appreciations of the commanders given in the appendices are invaluable for studying the making of appreciations at a higher level of command and for following the reasons that guided the commanders in their actions.

Certain minor mistakes and proof reading errors have crept in, which it is hoped that subsequent volumes when published will be free from.

J.N.

THE WAR AT SEA

S.W. ROSKILL

H.M. Stationery Office 42/-

One of the several volumes that go to make the official British History of World War II, this is the first of three volumes dealing with the maritime war. The author has divided the period of the war into three phases, and this first volume covers the period from its outbreak, till the end of 1941.

In recognition of the new concept of maritime warfare, the book tells the story of the war at sea in all its aspects. By that is meant that adequate weight and space is given to the great contribution made by the Royal Air Force, and to those land battles and campaigns which markedly influenced maritime strategy and operations.

This is clearly a break from past practice, when invariably, accounts of wars at sea were written only from the angle of one Service—the Navy. Any doubts that one might have had, regarding the all embracive character of maritime wars, and the effectiveness of the contribution of the other two Services in such a war, are soon dispelled after a study of the history of this recent conflict.

It must be understood that the "War at Sea" is written primarily from the standpoint of those responsible for the central direction of maritime strategy; whereas we are told that the other volumes which cover individual theatres, describe operations in those theatres more fully and as seen from the level of the Theatre Headquarters. Nevertheless, the various maritime operations are described in sufficient detail in this volume, to satisfy all general readers and certainly most military students.

The treatment of the subject matter is so designed as to give the reader an over-all picture of the war at sea, and he sees clearly how the decisions taken with regard to one part of the world, were constantly and continuously affected by the progress of events in the other parts. The reader, in other words, is enabled to get an insight into the shaping of global strategy.

Because the author has had full access to all captured enemy documents, he has been able, by piecing these together, to see the war not only as the Allies saw it, but also as they saw it from the enemy camp. He brings out, as a result, many examples of how an incorrect sighting report, or intelligence, changed the whole course of operations not only in that theatre, but also the effect it had on the adjoining theatres.

Not only is the narrative a factual account of the events of the war at sea, but the author goes into the reasoning followed by a commander before deciding to take a certain course of action and the factors underlying that reasoning. With what we know today about the war as seen from the enemy angle, the reader is helped to judge the causes that led to success or failure. Everyone will recall the loss of Britain's two mighty war-ships Prince of Wales and Repulse, by Japanese air attack off Malaya, in which the Admiral in command also lost his life. Much was said then and has been said since, about the reasons which prompted Admiral Sir Tom Philips to risk his valuable ships in the face of enemy air threat, without any corresponding friendly air support. How many know the facts, which give an entirely different colour to the whole sad business ? Briefly, the facts as brought out in this volume are, that when the Admiral signalled his change of plans to Singapore, he fully expected his Chief of Staff who was ashore there, to know his Admiral's views well enough, to arrange for air cover for the fleet for the following morning, without being specifically asked to do so. The disaster occurred when the air cover failed to materialise. The lesson that this incident has for us, is too obvious.

The volume under review is a bulky publication by normal standards. It runs into some 600 pages, but that should not put the reader off. It is an interesting work even for the casual reader, with no statistics, and marginal references in the pages of the narrative to distract attention from the story. Summaries and statistics are there at the appendices to the book, for those who are interested.

V.A.K.

SEVEN YEARS IN TIBET**HEINRICH HARRER***With illustrations**Rupert Hart-Davis, London, 16/-*

Since the close of World War II not a few books have appeared by escaped prisoners of war that are excellent reading. The majority of these books are by Allied P.O.Ws, the authors being former servicemen. Here is a book from "the other side" by a civilian, and it is undoubtedly the greatest book of them all. It is not simply a record of an escape from a P.O.W. camp, but it is also a wonderful travel book in the Peter Fleming style.

Tibet and its capital, the Holy City of Lhasa, are known to be about the most difficult places in the world for a European to enter. To penetrate to them in an organised expedition is in itself no mean accomplishment, for both geographically and politically they are, as it were, out of this world. To have done so as a fugitive prisoner-of-war ill-equipped for a circuitous and exhausting journey over the world's highest mountain passes and then to have stayed on to become a Tibetan Government official and the confidant of the Dalai Lama, was a superlative performance.

The author, Heinrich Harrer, came to India in the spring of 1939 with the German expedition to climb Nanga Parbat. On the outbreak of war he was interned, as an enemy alien, in an internment camp at Dehra-Dun. To the men in the camp the snow-capped Himalayas to the north constituted an effective barrier to freedom in that direction. On Herr Harrer they had the opposite effect. As an experienced mountaineer the Himalayas were his element. They beckoned to him and spelled freedom.

Breaking out with an Italian General in May 1943, Herr Harrer got as far as Nilang on the Pilgrim Road to Tibet when he was captured and sent back to Dehra-Dun. A second attempt, made with Aufschnaiter the leader of the Nanga Parbat expedition and others, in April 1944, was more successful. Trekking over a thousand miles through blizzards and the most rugged terrain in the world and after many encounters with

animals and the dreaded Khampas, the Tibetan dacoit, they arrived in Lhasa, virtually in rags, in January 1946.

It is a high tribute to the author's personality and his integrity of character that the Tibetan Government though at first unsympathetic, if not hostile, because of his unauthorised entry into Tibet, later relented and ultimately made him welcome in the Holy City. The author tells in simple style and in interesting and sympathetic detail of customs and life in Lhasa as it is lived by the three categories that make up its population, the monks, the nobles and the common people. He has made admirable use of the intimate knowledge he acquired of a happy simple and very religious people. It is a fortuitous circumstance that one of the best books on Tibet should make its appearance now, and that it should constitute so complete a record of Tibetan life before Communist annexation. It is to be seen, how much of the simple Tibetan character and its spiritual heritage remains after Communist indoctrination.

The book has been translated from the original German by Richard Graves.

H.L.F.

THE TEMPLE TIGER

JIM CORBETT

Oxford University Press, Rs. 6/8/-.

This is Jim Corbett's sixth book and it will be read by many, both shikaris and non shikaris, who have looked forward to his jungle and tiger stories since his "Man-eaters of Kumaon" was first published.

The full title of the book is "The Temple Tiger and More Man-eaters of Kumaon". The story of the temple tiger could have been excluded from the book for it lived under a dispensation and did not subsist, like the others, on a human diet. Its inclusion is probably a concession to the west and its expectation of mysticism in the east, even in its tigers.

Four man-eaters in the district of Kumaon in Uttar Pradesh are dealt with in this volume, and how he tracked them down using all the aids accumulated in a lifetime spent in the jungle, and shot them, is told in Colonel Corbett's lucid and simple style.

The story of the shooting of the Talla Des man-eater is a remarkable one. The author has kept this story for the end of the book and it is probably his greatest story.

H.L.F.

MANPOWER AND MODERN ARMS

MAJOR INDER SETHI, 1 Gorkha Rifles

I must compliment Lt. Col. Palit on his most interesting lecture that appeared in the April issue of your esteemed Journal. I am encouraged by Maj. Gen. Chaudhuri's remarks leaving the subject open to further discussion and have therefore the following comments to offer:—

- (a) A summary dismissal of the proposal on the ground of constitutional difficulties is not sustainable as the constitution places no bar on reorganising the Army in a fashion that would serve the ends of our national policy more effectively than at present.
- (b) That our foreign policy of non-involvement has unanimously been acclaimed as the correct one by all sections of the people in the country should encourage us to reorganise so that we may counter the strategic pressures by raising strength from within assured in the belief that any scheme of this kind would have popular backing.
- (c) Instability of the Government in a democratic set up should not deter a careful study and detailed planning of a purely strategic nature by the experts. It would be tantamount to stagnation in military thought if useful ideas are discarded on such hypothetical reasoning. What is good for the nation is also good for the Government as that would ensure the latter's continuance in power and consequently its policies.
- (d) A Militia Army as envisaged by the lecturer and the Territorial Army of today are not vastly different in conception. The end being the same, it becomes a matter of pursuing different means. The choice therefore should be one that affords the maximum advantages with the least expenditure of money.
- (e) There is always a psychological climate and appropriateness in a situation that carries the surge of new ideas to success. With the present-day international situation and rapid shifts

in 'Balance of Power' in South East Asia, will it be fair for those affected to remain silent spectators ? I feel the time is ripe for anything new, solid and creative to be launched if the national interest justifies it.

(f) We are professing to be peace loving people with no aggressive intentions or designs. Our armed forces of necessity have to be of a defensive nature to begin with. Are we equal to this task today in the framework of our foreign policy ?

I, however, disagree with Lt. Col. Palit's plea for reduction in the Regular Army to cater to the militia budget. As at present, it is small in size for a vast country like India. Apart from meeting the brunt of aggression a Regular Army forms a nucleus for expansion in an emergency. If all militia units were to get a sprinkling of trained officers and NCOs for ensuring reasonable standards, the present-day army would be barely enough for its primary role. Moreover, any reductions at this juncture without raising the militia to a high pitch of efficiency would seriously endanger the security of the country. Undoubtedly however, there will be room for reduction in overheads and services. This can be explored by a special committee of qualified persons from comparatively younger age groups whose minds are not fossilized or grooved. The following lines of investigation are suggested :—

- (a) Could the present system of production and procurement of food-stuffs for the armed forces be reorganised with a view to economies in the defence budget ?
- (b) Is the existing machinery for building, works and projects the most economical one ?
- (c) The medical cover for the field army in peace seems liberal. Could we economise in this direction ?
- (d) Are our methods of development, production and distribution of stores and equipment such as do not permit of careful probing for substantial economies ?

While agreeing with the principle of detailed examination of a 'Militia Army' as a strategic concept, uninhibited by any ideological or political considerations, I feel that the existing pattern of the Regular Army should not only exist but can substantially help towards evolving a sound and effective defence lay out. There is however room for exploring avenues for reducing expenditure on overheads and services.

It needs being emphasised that it would be wrong to economise by cuts in wages, service facilities and service privileges. The adverse effect of such cuts on morale and efficiency in the Regular Army is obvious and hence approach in this direction for seeking economies unwise.

TANK VERSUS TANK BATTLE

MAJOR A.K. NAYYAR, 3 Cavalry

Major Naib has advocated that the destruction of enemy tanks should be left to what he calls "tank-destroying teams" in order to avoid our own tank losses.* He has not defined clearly the organisation and functions of these teams. Since he wants tanks to keep aloof from the job of tank destruction, his tank-destroying teams would consist primarily of infantry armed with short range recoil-less anti-tank weapons and of artillery with towed and self-propelled anti-tank guns. He insists that these teams would succeed in destroying most of the enemy armour and our tanks would merely have to liquidate the tired remnants of a beaten armoured force.

I feel that this concept of tank *versus* tank battle is based on an exaggerated opinion about the effectiveness of anti-tank weapons which needs "debunking", to use the author's expression. If "tank-destroying teams" were as effective as made out in the article, there would be no justification for maintaining an expensive armoured corps.

I shall first deal with the short range recoil-less weapons of the tank-destroying teams. These weapons have a low muzzle velocity and are inaccurate except at very close ranges. Their ammunition is bulky and hence only a small quantity can be carried into battle. The biggest defect is that, at the time of firing, these weapons create to their rear a large cone-shaped danger zone of burning propellant charge. On account of this they are very difficult to site. The firer has to take up a firing position almost in the open in full view of advancing tanks and infantry. He thus commits certain suicide without inflicting any serious loss on the tanks.

I will now take the long range anti-tank gun. It suffers from several serious drawbacks. Its crew is vulnerable to small arms and artillery fire. The anti-tank gun has a prominent muzzle flash which discloses its position

* *U.S.I. Journal*, July 1954.

with the first shot. As the gun has to be dug in, it cannot change its position once the battle has begun. Consequently, it can be easily neutralised or destroyed by artillery fire or by infantry accompanying tanks. Even the self-propelled anti-tank gun is no match for tanks since it has neither overhead cover nor thick armour and speed and besides is difficult to conceal.

Armoured assault forces in close co-operation with infantry can, therefore, overcome the thickest of anti-tank gun screens by employing fire and movement tactics and concentrating in mass on a narrow sector with heavy fire support, both pre-arranged and impromptu, from artillery and air force.

I have a few words to say about the other non-armour anti-tank weapons. Medium and heavier type of artillery cannot stop a well dispersed tank force because the fire being indirect, zig zagging pin-point targets are difficult to hit. Even to get an odd direct hit, an extremely heavy concentration of this type of artillery fire would be necessary, which is impossible to achieve without unlimited resources in guns and ammunition. The jet aircraft are becoming so fast that their utility as ground attack aircraft is in grave doubt. Anti-tank minefields and obstacles have only a delaying value as they can be quickly breached once the weapons covering them have been neutralised.

In view of the reasons given above, it has been more or less universally accepted that the best anti-tank weapon is the tank itself. Most of the modern armies now incorporate tanks as integral units in their infantry formations. No one can deny that the infantry short-range anti-tank weapons as well as anti-tank guns play an important role in anti-tank defence but the fact remains that tanks are still the primary means of destroying tanks. Therefore one of the principal roles of armour is to seek and destroy enemy armour, besides assisting the infantry in many other ways.

AN ALL-ROUND BIG GAME RIFLE FOR INDIA

S.N. PRASAD

Historical Section, Ministry of Defence, New Delhi.

I welcome Lieut.-Colonel Palit's interesting articles on 'An All-Round Big Game Rifle for India', published in the October 1954 issue of our Journal. His discussion of the subject is absorbing and lucid, but I beg to differ from his conclusion, that the best all-round big game rifle for India is the .318 Westley Richard's Accelerated Express.

At the outset, I take it that he is writing primarily for the benefit of the uninitiated novice, since the experienced shikari will already have his own ideas based on his personal experience.

Granted that most of us shoot black buck most of the time—for which the .318 is excellent—and meet a tiger or bear rarely. But an all-round rifle must be able to deal with these rare customers also. The .318 is, I think, barely sufficient for tiger or bear when used by an experienced shikari. Colonel Palit agrees that most of our officers get little experience of tiger, etc., due mainly to the cost involved. Isn't there all the more reason then why they must carry rifles that are sufficiently powerful to give knock-down blows and ensure one shot kills with any reasonably placed shot. No one can guarantee to put a bullet every time between the eyes or through the heart of a tiger trotting in and out of the dense jungle undergrowth. Hit him with a .318 bullet in a non-vital area, and you have on your hands the tracking and finishing off of a wounded tiger in dense cover. Almost all fatal shikar accidents happen just in these circumstances. An inexperienced shikari seldom knows the dangers involved in this. If he is a true sportsman, he will never quit the game because of the dangers—and those who do are responsible for creating that terror of our jungles, the man-eater tiger, as explained by Best, Jim Corbett and others.

On balance, is it not better to carry a rifle like the 375 Magnum, or .404, which is both flat-shooting as well as powerful. I agree that they are heavy (about 9 lbs) and their cartridges are a little expensive. But the cost of the ammunition is a minor item even in the week-end shikar, and big game shooting is admittedly not for sissies.

And if a .318 is considered suitable, why not the good old .30 Springfield? Both drive the 180 grains bullet at about 2700 ft/sec, and the Muzzle Energy of the 220 grains 30'06 bullet is only slightly less than that of the 250 grains .318 bullet. The 30'06 in the hands of cool shots has killed many tigers. A new .318 rifle by Westley Richards will cost about Rs. 1400/-; the 30'06 of Swedish or Czech make costs only about Rs. 650/-. If the .318 cartridge costs Rs. 1/6/- per round, the 30'06 costs only Re. 1/-/. And the 30'06 ammunition is available with almost all gun-dealers, while the .318 is often out of the market for months.

In conclusion, I would earnestly maintain that the only satisfactory, safe, and therefore wise, choice for a budding shikari is a .375 Magnum or .404 Jefferey if he wants an all round magazine rifle and a 450/400 or 375 Magum if he wants a double.

SECRETARY'S NOTES

Lectures & Discussions

In November and December 1954 the following lectures were held:—

“The Unity of India,” by

Mr. C.S. Venkatachar, ICS 15th November 1954

“Atomic Energy and Its Uses”, by

Dr. H.J. Bhabha 29th November 1954

“The Yugoslav Army,” by

Major-General Milos Sumonja 22nd December 1954

Annual Council Meeting

At the annual meeting of the Council held in New Delhi on 16th December 1954, Commodore R.D. Katari, IN was elected President.

The Council elected the following to serve on the Executive Committee:—Major-General L.P. Sen, DSO (Chairman) Major-General Th. Sheodatt Singh (Retd.), Air Commodore P.C. Lal, DFC, IAF, Brigadier B.M. Kaul, Commander N. Krishnan, DSC, IN.

Life Membership

The Council has decided that the Life Subscription of Rs. 160 (which includes Rs. 10 entrance fee) can be paid either in one sum or in five instalments in the same calendar year.

Enrolment of Cadets

Army, Navy and Air Force Cadets due for commissioning at the various Academies are eligible to apply for membership of the USI during their last term, i.e., during the last six months before passing out. The Council has now agreed to exempt them from the payment of the entrance fee of Rs. 10/-, provided their enrolment forms and first subscriptions are forwarded to the U.S.I. office before they attain commissioned rank.

Changes of Address

Members are requested to notify any changes of address to the Secretary's office. Please fill in the printed form given elsewhere in this issue.

New Members

From 1st October to 31st December 1954 the following members joined the Institution :—

BAGCHI, 2/Lieut. J., Signals.

BALBIR SINGH SANDHU, Pilot Officer, I.A.F.

BEDI, Lieut. B.S., A.O.C.

*GUPTA, 2/Lieut. B.B., 1 Gorkha Rifles.

LAZARO, Squadron Leader J.F., I.A.F.

*MUKERJEE, Esq., S.K., D.F.A., Ministry of Finance (Defence).

NARAYANAN, Group Captain A.A., I.A.F.

RAJAGOPAL, Squadron Leader D., I.A.F.

RAJBIR SINGH YADAV, Major, Engineers.

RAJINDER PAL BAHEL, Lieut., A.O.C.

RAM CHANDRAN, Lieut. C.P., Indian Navy.

RAN SINGH, Captain, The Jat Regiment.

RANDHAWA, Captain, R.S., The Dogra Regiment.

RANDHIR SINGH KADYAN, Lieut., The Rajputana Rifles.

ROOPINDER SINGH DHILLON, Major, 3 Cavalry.

SIMMONS, Commander J.B., Indian Navy.

SOWANI, Captain P.Y., Artillery.

SWAMBAR JIT SINGH, Major, Engineers.

YASH PAUL CHADHA, 2/Lieut., A.S.C.

SUBSCRIBING MEMBERS

Four Officers' Messes and Units were enrolled as subscribing members during this period.

*Life Members.

NOTICE**MARATHA DINNER CLUB ESSAY COMPETITION**

To encourage study and research in Maratha Light Infantry Regimental history, as well as to encourage officers in the art of good writing generally, entries are invited for

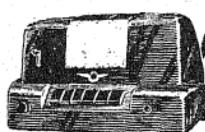
(a) A "Research Essay" on "A selected action in any campaign in World War II, or the Kashmir Operations, wherein a Maratha unit took a prominent part."

(All officers of the Army are eligible to compete. Two awards, of Rs. 100 and Rs. 50 each, will be made to approved essays).

(b) An Article on any subject giving personal experiences of the writer.

(Officers of the MLI past and present can compete. Two awards, of Rs. 50 and Rs. 25 each, will be made to approved articles).

Entries may vary between 4,000 and 8,000 words, will be in the individual's own language, and submitted type-written in triplicate, so as to reach Brigadier N.V. Bal, A.G.'s Branch, Army Headquarters, New Delhi by 30 September 1955. Any further information can be had from the same source.



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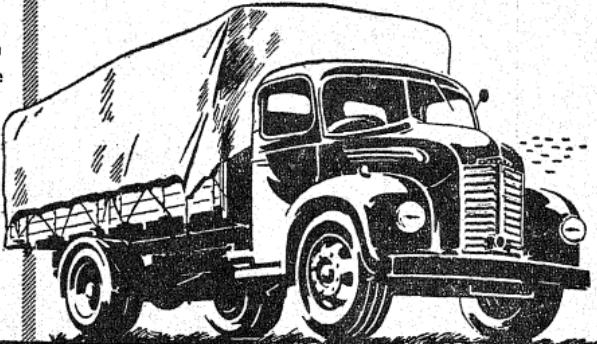
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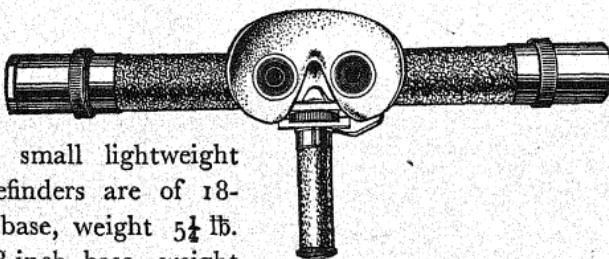
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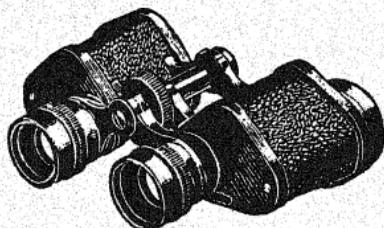
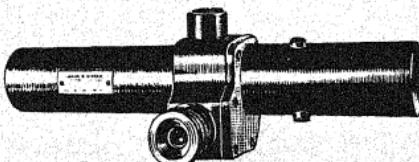
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